COUNTWAY LIBRARY
HC 5QEI

2 2. R. 125

FROM THE FUND BEQUEATHED BY
ROBERT CHARLES BILLINGS
1819 1899
TO THE
BOSTON MEDICAL LIBRARY
Nº 8 THE FENWAY

SUGGESTION AND PSYCHOTHERAPY

Digitized by the Internet Archive
in 2025

https://archive.org/details/suggestionpsycho0000geor

SUGGESTION AND PSYCHOTHERAPY

BY

GEORGE W. JACOBY, M.D.

FELLOW OF THE NEW YORK ACADEMY OF MEDICINE, MEMBER OF THE AMERICAN MEDICAL ASSOCIATION, AMERICAN NEUROLOGICAL ASSOCIATION, AND NEW YORK NEUROLOGICAL SOCIETY, CONSULTING NEUROLOGIST TO THE HOSPITAL FOR NERVOUS DISEASES, THE GERMAN HOSPITAL, THE BETH ISRAEL HOSPITAL, THE RED CROSS HOSPITAL, AND THE INFIRMARY FOR WOMEN AND CHILDREN IN THE CITY OF NEW YORK, ETC.

WITH ILLUSTRATIONS

NEW YORK

CHARLES SCRIBNER'S SONS

1912

10973 B2

COPYRIGHT, 1912, BY
CHARLES SCRIBNER'S SONS

Published March, 1912

PREFACE

The influence of the mind in the causation and in the cure of disease has been exaggerated in general literature and many so-called scientific writings, but it is real and must be recognized. Had physicians given more thought to psychic treatment there would to-day be no cause for complaint in regard to the increasing harm which is being done by ignorant enthusiasts and wilful impostors.

I have endeavored in the present work to present scientific facts impartially and to submit them to a fair analysis; only after such treatment have I given what seems to me to be the inevitable conclusion. Some such guide to correct reasoning in the intricate subject of suggestion and psychotherapy is needed. Every person who has not had a scientific, I might say a laboratory, training is prone instinctively—at any rate unless he uses reflection—to confound two very different things, that which he really perceives and his deduction from what he

has seen, felt, or heard. I trust this book will show the fallacy of confounding facts with opinions.

It is very possible that I have not succeeded throughout in expressing myself in as simple terms as might be desired; if this is so I must ask the reader's forbearance. While I have started from elementary facts and from them have proceeded to more complicated ideas, I have nevertheless been obliged to accredit my readers with a certain degree of general scientific culture. Such readers certainly will not hesitate to reread any chapter which at first may to them seem obscure.

The book, being systematically written, can be studied profitably only as a whole; it would be unfair to reader or writer to consider single chapters separate from their sequential context, for each follows logically upon the other and every succeeding page is dependent upon what has gone before. This must be borne in mind also in relation to technical expressions, for terms used later in the work may seem obscure to those who have not read the short definitions given when the technical designation was employed for the first time. Nor is it essential that every reader should understand all of the contents of the entire book. If each gathers

but a single kernel of truth and widens his point of view by the acquisition of but a bit of knowledge the book will have been worth while.

Not long ago while sitting in a New York subway local train we were passed by an express going in the same direction. For a moment it seemed as though the local had come to a stop; then it appeared to reverse its course and go backward. The illusion was complete, yet I knew I was laboring under a sense deception and that both trains were going in one and the same direction. So, in this present time of progress and enlightenment, it may often appear as though the large masses of people were being carried along by ignorance and superstition, while true mental culture stands still or even goes backward. Yet this also would be an illusion, a sense deception, for scientific truth creeps forward slowly, but always steadily, and its ultimate conquest over mysticism and other occult enemies is assured.

CONTENTS

INTRODUCTION 3

Popularization of science in general—Popularization of medicine in particular—The good and the bad in popular instruction—Dangers of lay treatment—Benefits of popularized psychotherapy—Outline of the work.

PART FIRST: SUGGESTION

I. PSYCHOLOGICAL GROUNDWORK

A. PSYCHOLOGY AS A NATURAL SCIENCE . . 17

Speculative psychology—Empiric psychology—Objects of mind study—Exclusion of prejudice in investigation.

B. THE ORGANS OF MENTAL ACTIVITY . . . 20

The nerve formations—Stimulus and reaction—Differentiation of conduction tracts—Reflex phenomena—Sensory apparatus—Specific sensory energy—Nerve cells—The neuron—Sensory and motor nerves—The brain—Significance of weight and fissures—The brain cortex as the seat of the higher psychic functions—Localization of psychic functions—Results of embryological studies—Association centres—Transmission of sensory impressions—Gray and white matter—The spinal cord.

C. Contents and Course of Mental Activity 39

Sensory perceptions the basis of ideational life—Involuntary expressional movements—Stimulation confines—Sound and light perception—"After images"—Secondary sensory impressions—Memory images—Pictures of the imagination—"Passable" connecting tracts—Sleep-walking—Other elements of association of ideas—Psycho-physical parallelism—Graphic methods—Concepts—Law of similarity and simultaneity—Emotional tones—The will—Apperception and attention—The feeling of self—Speech—Freedom of the will.

D. Peculiarities of Mental Activity . . 75

Telepathy—Other "occult" phenomena—One-sidedness of genius—Sleep and dreams—Freud's dream analysis—Mind of the child—Development of association tracts—Muscular exercise—Development of the faculty of speech—Individual peculiarities of the male and the female mind—Difference of brain organization—Opinions of experts.

E. Disordered Mental Activity 105

Psychoses—Boundary between health and disease—False ideas and mental disease—Delusions which cannot be corrected—Sensory deceptions—Power of the imagination—Organic and functional nervous disorder.

II. SUGGESTION AS A PSYCHIC FORCE

A. Possibility and Nature of Suggestion . 131

Definition—Psychic infection—Adoption of a suggestion—Limits of suggestion—Reconstructed personality—Double personality—Ideational diseases—Dissociation of personality—Potency of a suggestion—Receptivity of weak characters.

B. Scope of Suggestion 147

Possibilities of suggestion—Organic changes cannot be produced by it—Alterations of function through suggestion—Views of the Nancy school—Suggestion not irresistible—Responsibility of hypnotized persons—Apparent death of Yogis.

C. Forms of Suggestion 163

Hypnosis and waking suggestion—Hypnosis not sleep—Verbal suggestion ample—Subconscious manifestations—Theory of dual personality—Subconsciousness is co-consciousness—Natural explanation of trance phenomena—Auto-suggestion, involuntary and purposeful—Foreign suggestion.

D. Suggestion—Its Past and Present . . 182

Wolf and dog madness in olden times—Flagellantism—Children's crusades and dance madness in the Middle Ages—The devil as the producer of functional nervous disorder—Temple sleep as a remedial agency—Mesmer and magnetism—Faria—Braid—Liébault—More recent investigators—Miracles and nature's laws—Modern superstition—Dukhobortsi and Raskolniks.

PART SECOND: PSYCHOTHERAPY

I. GENERAL CONSIDERATIONS

A. Definitions 209

Cure of the mind—Cure through the mind—Difference between psychotherapy and psychiatry—Secondary aim of psychotherapy.

B. The Justifiability of Psychotherapy . 211

Darwin's theory of the survival of the fittest—Alteration of natural conditions of life—Adaptation to conditions of civilization—The sick and the feeble as factors in civilization—Detriments to civilization and aim of combating them—Critical remarks on disease and human fault—The folly of belief in miracles—Medical science in the service of adaptation—Arguments against psychotherapy—Their fallacy—Psychotherapy in harmony with laws of nature.

C. Dangers of Psychotherapy 229

Special knowledge requisite—Importance of diagnosis—Charlatans grope in the dark—Injury to health through error of treatment—Dangers of experimentation—How to avoid them.

D. Christian Science, Faith and Prayer Cures 235

Superstition in medicine—The excuse for it in ancient times—Miracle reports of the priests—Adoration of relics and saints—Natural causes of "supernatural" cures—The comedy of mysticism—Mrs. Eddy, John Alexander Dowie, and Emmanuel movement—Disturbance of the unison with God as a cause of disease—Restoration of this unison as a means of treatment—The self-deception of faith and prayer healers.

E. The Personality of the Physician . . 262

Not the remedy but the physician cures—Essential attributes of the psychotherapist—Psychotherapeutic training—Knowledge of humanity and human conduct—Emotional qualities.

F. The Personality of the Patient . . . 270

Those most easily influenced—Insanities cannot be benefited—Psychotherapy addressed to personalities—Indirect influence on organic changes—Importance of individualization—Suggestibility of men, women, and children—The opposition of sceptics—Adaptation to the individuality an essential to psychotherapeutic success.

II. SPECIAL APPLICATION OF PSYCHOTHERAPY

A. The Most Important Methods . . . 282

1. Mental Therapeutics

Suggestion method—Catharsis—Freud's psycho-analysis—Determination of the cause of functional nervous disorders—Subsequent discharge of repressed emotions—Persistence of suppressed emotions in subconsciousness—Their reawakening in hypnosis—Memory exploration by means of association of ideas—Significance of the sexual sphere in hysterical symptoms—Criticism of the psycho-analytic method—Relation of dreams to nervous diseases—Mental rest and exercise—Reduction of activity—Relief of sleeplessness—Exhaustion as a cause of functional nervous disorder—Perimetry as a metre of treatment—Varying ways in which patients react—Advantages of sanatorium treatment.

2. Psycho-Prophylactic Treatment

Prevention of nervous disorder—Educational tasks of the psychotherapist—Question of over-strain in school—Mental defectives—Noxious influences in childhood—Education of the adult—Excessive ten-

derness and sensitiveness—Lack of occupation and luxurious living as causes of degeneration—The struggle for existence as a means of exercise—The aim of psycho-prophylactic treatment.

B. Practical Examples 315

Direct and indirect, simple and combined suggestion treatment—Relief from morbid symptoms—Severe disorders of function as a result of mere imagination—Their prompt relief through annulling the false ideas—Symptomatic suggestion treatment of various organs—Cure of hypochondriacal depression—Psychic sea-sickness—Removal of anorexia—Psychic diarrhœa and costiveness—Psychic dyspnœa—Traumatic neuroses—Other examples of disorders of function psychically caused and psychically cured.

Conclusion 338

Literature 347

Index 351

SUGGESTION AND PSYCHOTHERAPY

INTRODUCTION

"Le plus grand déreglement de l'esprit est de croire les choses parce qu'on veut qu'elles soient."—PASTEUR.

THE most conspicuous trend of the intellectual life of our times is toward the popularization of science. The feverish activity so characteristic of modern life manifests itself, and not by any means least, in the zeal with which the results of scientific research are being presented to constantly growing audiences. The standard of general education is raised simultaneously by public lectures, by scientific essays in the daily press and magazines, and by books covering their subjects exhaustively.

It is doubtful whether enlightenment actually results from such methods, or whether they produce a certain questionable semi-education, which frequently is worse than gross ignorance. The benefit to be derived by those in the lecture audience or by the readers of the periodicals must depend on their critical acumen and independence of judgment, their ability to separate the essential from the unessential, to re-examine the facts adduced,

and, above all, to recognize what is based on conjecture and what is proved by evidence.

But from the mass of scientific material most of them absorb only what appeals to their own traits or desires. Therefore, while the object of the popularization of science is to annul *a priori* belief in authorities, and to correct blind confidence in transmitted dogmas, what really is attained is often the revival of similar belief in other forms. Such semi-education, though it produces confusion in untrained minds and excites the ridicule of those of more intelligence, generally causes most harm in the field of medical dilettanteism, that most harmful form of amateurishness. Where we are dealing with the most valuable possession of mankind, mental and bodily health, half-knowledge indisputably is much worse than crass ignorance.

Neither a knowledge of the construction and the functions of the body, nor of the more important rules of health, is to be classed as medical dilettanteism. The laws on which our weal and woe primarily depend are quite as fit objects of general education as, for instance, simple mathematics or the primary facts in history. But the popular medical literature, in its description of diseases and

their treatment, ignores those laws, produces misconceptions of all sorts, and, therefore, is detrimental and dangerous.

If the adept and experienced physician cannot avoid diagnostic errors, is it reasonable to expect the layman to recognize disease and to understand its complicated processes?

Faulty instruction on such a subject, especially when it comes from an incompetent source, certainly cannot be very beneficial. Usually such teaching leads the layman to ascribe to himself or to others some disease which is not present, or else he fails to comprehend the nature of an actual disorder, in which case he resorts to remedies which should not be applied. Volumes might be filled with an enumeration of the known victims of such medical dilettanteism, self-treatment, charlatanism, and "prayer cure." The number would be much larger were all such cases made the object of official record or juridical investigation.

Bitter experience has proved the evil of incompetent administration of drugs, and medical dilettanteism, therefore, has turned in recent years to suggestive therapeutics, on the erroneous assumption that this method of treatment, if not successful,

at least could do no harm. To the better-informed, however, it long has been clear that treatment by suggestion, or psychotherapy, if not directed by the experienced physician, may cause considerable detriment, even if only because the opportune moment for rational intervention by the competent physician has been missed.

True, the objection may be raised that physicians themselves, in speech and writing, have encouraged such pernicious instruction by taking popular methods to spread their own views. Much of the popular medical literature of recent years, in fact, is the work not of quacks and charlatans, but of competent medical authorities eager to enlighten and educate. In fact, the literary activity of the real physician has largely been forced by the pretender. Of two insurmountable evils, the trained medical man has chosen the lesser.

That it is an evil to discuss indiscriminately before a lay public the complexities of etiology, pathology, pathogenesis, symptomatology, differential diagnosis, prophylaxis, and therapy cannot be disputed, but as that is being done to an inordinate extent by persons thoroughly unqualified to express intelligent opinion on those subjects, and as the

physicians themselves cannot check such deleterious methods, there remains no alternative for the completely equipped practitioner of medicine except to wield the superior arms which science has placed at his disposal.

If the public receives the desired instruction from a source competent to give it, because correctly informed, the evil cannot be as great as when charlatans, by their writings and lectures, deliberately lead to confusion and error. Their misteaching is unpardonable, for how should those not even conversant with the fundamental theories of exact investigation assume the duty of transmitting medical knowledge? While they proclaim that their purpose is to spread enlightenment, they really are actuated only by unconscientious covetousness, frivolous presumption, and, to put it mildly, a fanaticism which is open to correction by neither reason nor authority. They speculate on a belief in the stupidity of the public, and for that reason alone make no geniune effort to disseminate true knowledge.

The scrupulous exponent of popular medical knowledge must convince the layman that it is impossible for him to diagnose diseases and to

treat them scientifically. With that principle in mind, the great Virchow, with Holtzendorf, put forth a "Collection of Popular Scientific Lectures," a work which has done much to change the attitude of the profession toward the wide promulgation of medical instruction. Not so long ago any work of that nature was deprecated as a breach of professional ethics. Fortunately for the advancement of culture, that attitude has changed.

This work is addressed to cultivated persons generally, with the purpose of helping them to comprehend the difficulties of medical investigation, and of instilling a conviction of the evils and dangers which result from the treatment of diseases by the unqualified. That this authoritative material will ultimately overcome the ill effect of the harmful literature of the day we have no doubt, for even in literary controversy Darwin's maxim of the survival of the fittest must apply. These words of Schrenck-Notzing explain the reason of much that is written here:

"Especially in view of the enormous significance of suggestion in the domain of mental life, and in view of the false impression which still sways large classes of people in their opinion of charlatanism

and wonder cure, as well as in other branches of knowledge, the proper conception of suggestion by the public can only be productive of good and enlightenment."

Competent instruction is nowhere more necessary or more difficult to obtain than in relation to the influence of the mind upon the body, and, at the same time, in no subject is the interest greater. As we have indicated before, one great office of such a work as this is to make the public realize the penalty it is paying for its ready attention to the teachings of the charlatans.

With the increasing specialization and division of labor in medicine, the science of suggestion and psychotherapy has acquired extraordinary import. Many an enigma of the mind has been solved since psychology has ceased to be a speculative science, since we know that the mental functions cannot be recognized introspectively, but can be understood only in connection with bodily processes—above all, in their indissoluble relationship to the central nervous system; since, in a word, psychology has become an exact science in which, as in other branches of natural science, observation and experiment are recognized as the only valid methods of investiga-

tion, and since the mystic darkness which has enshrouded "the soul" has been lifted. In all this progress the literature on suggestion and psychotherapy has assumed almost unwieldy dimensions, and its volume is being swelled constantly by popular writings. Excluding those which are valueless because they are the fabrications of charlatans and prayer healers, there remain many admirable productions by qualified experts which excel quite as much by the strict objectivity of their contents as by the popular manner in which they are written.

Under these circumstances, it might be considered supererogation to increase this literature by still another book. Nevertheless, there are two points which must not be overlooked.

First, science is progressive. That which some time ago may have been looked upon as a true record of existing knowledge may to-day have been enlarged or restricted. Without disregarding older views, on which modern progress to a great extent is founded, our object will be to acquaint the educated reader, of any pursuit or calling, with the newest products of investigation in the field of suggestion and psychotherapy. In so doing, of course,

it will often be necessary to refer extensively to the literature of former years.

The second point to bear in mind is that science cannot be better served than if many writers occupy themselves with the same subject. Each adduces points of view which had escaped his predecessors, starts from different premises, has different experiences, and arrives at entirely dissimilar conclusions. Thus scientific progress is constantly being corrected, so that errors can never be maintained long. My hope is that this book, in which I shall endeavor as much to give due weight to the opinions of qualified writers of various countries as to overthrow the unsupportable assertions of others, will be accepted as a guide and as a critical supplement to the earlier works.

The book being divided into the two main parts named in the title, "Suggestion" and "Psychotherapy," I show in the first part what suggestion is, how it is produced, and how it acts. From the historical retrospect it may be seen that the power of the suggestive influence of the will was well understood in ancient times, and was adroitly used by forceful persons for the attainment of many ends. In discussing suggestion as a psychic force, I take

up the startling effects which, during the period of superstition and belief in miracles, must have been ascribed to supernatural causes, and I show their dependence upon natural laws, and especially upon the close mutual relationship between bodily and mental processes. To do that, of course, I shall have to define the stand-point of science as opposed to the stand-point of faith.

It is the province of science to perceive and explain the facts of nature, but even to-day, as the attentive reader will appreciate, science often must be satisfied with simply discerning those facts without being able to understand or elucidate them. In the field of suggestion, especially does the observer note many a phenomenon which apparently cannot be reconciled with the recognized laws of nature, although the actuality of it cannot be refuted. In such cases faith repels any attempt at explanation, and assumes that the action of natural laws has been arrested by supernatural powers—in other words, clings to a belief in miracles—while science, though conceding there is a limit to the powers of human cognition, and admitting that we probably never shall achieve a clear insight into the ultimate causes of all things, insists that the con-

tradiction between "miracles" and the orderly laws of nature is merely an apparent one, inasmuch as not all those laws are yet known to us. That standpoint of science alone has made possible the remarkable progress in human discernment, and through it alone could light be created to dispel the darkness which has enshrouded the phenomena of suggestion. Thanks to unceasing investigation, much which a century ago was looked upon as "wonderful" has been traced to its natural causes, and perhaps in a century more the mystery will be removed completely from many things still considered "wonderful."

Having cleared up the meaning of the startling effects of suggestion, I proceed to explain the difference between hypnotic suggestion, waking suggestion, and auto-suggestion. In the course of the work are discussed interesting instances of suggestion produced by sense deceptions, by the power of persuasion, and by the simple tendency to imitation. Furthermore, I show that, even in the state of hypnosis, the will of the person suggesting cannot enforce obedience if the person acted upon is not susceptible to the suggested idea. I also distinguish between suggestion under normal and under

pathological conditions. As illustrations I shall use interesting examples taken in part from the observations of others, and in part from my own experience.

The second division of the book treats of the practical application of suggestion as a curative agent—psychotherapy.

Kant, in his celebrated treatise, "On the power of the mind to master one's disordered feelings by the mere exercise of will," voiced the principle that it is possible to control disordered processes by means of suggestion. I shall show the great importance in psychotherapy of distinguishing between disturbances of a functional nature—those which take their course without perceptible organic change—and those of an organic kind; for, while suggestive therapeutics finds a fruitful field in "psychic infection"—the infusion of foreign salutary conceptions in the mind of an individual with a central nervous system of enfeebled energy—it encounters much more difficulty in arousing concepts that will beneficially influence the course of organic disease. Cases of outspoken psychosis, on the other hand, are not at all susceptible to suggestive treatment. Fractures of bones, cancer, tuber-

culosis, etc., it is hardly necessary to say, cannot be cured, or even materially improved by suggestive treatment.

It is true the associated "abnormal feelings" may be removed by suggestion in such instances, though the organic alterations themselves remain. Therein, psychotherapy, as I shall show, proves a most valuable adjuvant to the surgical, medical, or other treatment which may have been undertaken. It will be demonstrated in detail how important in all such cases are the personality of the physician, and his ability to influence and to obtain the unlimited confidence of the patient, and how, on the other hand, Christian Scientists, prayer healers, charlatans, hypnotizers, and other laymen, lacking knowledge of indication or contra-indication, such as is needed to make psychological means of treatment effective, bring these means into discredit.

Dercum, writing of the psychotherapeutic movement in America, says:

"This is an age incontrovertibly of fads, an age when the unessential, the intangible, the weird and mystic are pursued, when high-sounding words and phrases take the place of ideas, when metaphysical vaporings replace scientific observations, and trivial

nothings the solid truth, when wretched commonplaces inspire admiration, when worn-out platitudes become strokes of genius, and when the imbecilities of hysteria become the final words of wisdom and of morals."

My aim in this book has been to present all that which will tend to neutralize such a state of mind among the public.

PART FIRST

SUGGESTION

I. PSYCHOLOGICAL GROUNDWORK

A. Psychology as a Natural Science

To understand suggestion as an influence on the mind we must have a knowledge of mental activity, and that, therefore, will receive our attention first, even if only an outline of the subject be presented.

Psychology, the science of mental processes, was studied for centuries in a speculative way, without any consideration of the material substratum of those processes. In all that time the dogma that body and soul were unconnected with each other and that the soul continued to exist independently after the disintegration of the body persisted unwaveringly. It was supposed that feeling, perceiving, and willing, the faculties which constitute mental activity, had absolutely no relation with activities of the body, as, for instance, breathing, digestion, and muscular action.

Even at present this view is wide-spread, not only among the larger masses of people, but to a great extent among philosophers, and even among natural scientists. This opinion, which creates an antithesis between body and soul, and which assumes that bodily and mental activities functionate according to different laws, is designated as dualism.

This speculative psychology, which lacks any positive basis, and which, starting from random assumptions, passes on to endless mistaken theories regarding the processes of the soul, has to-day been replaced by an empirical psychology which, above all, proceeds according to inductive methods of investigation—that is, it starts from observation alone and sets up doctrines only after close study of a large number of uniform experiences. Foremost of those doctrines stands the fundamental law that mental processes, like all other evidences of vital action, must be regarded as functions of certain bodily organs. To be specific, mental processes are functions of the central nervous system.

The one great reason for which empirical psychology to-day must be classed with the natural sciences as an exact discipline is this: It has become a physiological psychology, whose task, as

Wundt points out, is the investigation of that which we designate as inner experience, as contrasted with objects of outer experience, which belong to the domain of natural science. This inner experience is made up of our perceptions and feelings, thoughts and volition. Wundt says: "Man himself, not as he appears from the outside, but as he is directly represented to himself—that is the actual problem of psychology."

It is the task of psychology to recognize facts, and by demonstrating their causal relationships, to explain them. Investigation may be carried on not only by means of observation under conditions as furnished by nature, but also by means of experiment—that is, under conditions produced artificially. Equal causes under equal conditions must produce equal results. If, therefore, any experience arising from a natural happening is properly interpreted, then the same experience must result when the same happening is artificially imitated. Where the result of the experiment differs from the natural experience, it is clear there exists a source of error which must be excluded by means of further experiment.

Further, it is always most essential that observa-

tion and experiment should not in any way be obscured by previously formed opinions. Empirical psychology must be unprejudiced in investigation, as must all exact sciences. Only that conclusion can be decisive which is found in each single case, irrespective of any teaching of metaphysics and of any and every philosophic-theologic system. A recognition of these principles has made scientific methods of study dominate in psychology, and now the site in which the laws of mental life are being investigated has been removed from the library to the laboratory.

B. The Organs of Mental Activity

The facts detailed here are the products of empirical or physiological psychology, results obtained through the study of mental processes by means of observation and experimental counterproof.

The organs which make up the nervous system bring us into physical and mental association with the world about us; they keep us informed concerning all that takes place in our environment; they transmit to all parts of the body the influence which the outer world exerts upon it, and also give a variety of information regarding processes and

conditions within the body itself. Finally, they put into action every function and enable it to take its course in a proper manner.

Mental activities also are nerve processes. Such a nerve process is made up of the reception of a stimulus, the conduction of the excitation caused by the stimulus, and the response to this excitation or the reaction. The reaction may consist of movements which may be observed without difficulty, or it may take place without being directly observable. If a particle of dust is blown against the cornea of the eye, involuntarily the eye closes; if ammonia fumes reach the mucous membrane of the nose, a sneeze follows; if the hand accidentally comes into contact with a heated object, it draws back instinctively. The closing of the eye, the sneezing, and the withdrawal of the hand are reactions respectively to the excitations mentioned.

On the other hand, the aspect of a rare flower may lead me to examine it more carefully. Consequently, there remains a more or less distinct impression, a memory picture which, of course, cannot be observed by any other person. I am able to represent to myself the appearance of the flower, and to recognize it when I see it again.

The production of reactions in consequence of external stimulations is one of the fundamental manifestations of life, and is inherent in all organisms.

A nerve process, however, exists only if the reaction to an excitation occurs through differentiated nervous elements. Plants and animals of a lower grade lack nervous formations, yet even in them may be noticed reactions to excitations, as, for example, the closing up of leaves and flowers with the approach of darkness and their reopening on the return of light, the contractive movements of polyps, etc. The majority of excitation responses among lower organisms remain hidden, but the excitation may be followed by noticeable movements or changes in form. Such movements, though at times they appear to be purposeful, always are dependent on physical or chemical causes. They always take place with the same conformity to natural laws, even when the same conditions are artificially, *i. e.*, experimentally, produced—just as iron filings, for instance, change their position as soon as a magnet is brought near them.

The earliest beginnings of differentiated conducting tracts are found in the cœlentera, or plant animals. In the Medusæ, for instance, there al-

ready has been formed a double nerve ring, consisting of cells and fibres which emanate from them; the fibres take their course to the musculature, to the sensory organs, and to the feelers, or tentacles. Excitation at any point produces contraction of the muscles, and thereby a movement of the animal. The stimulus applied to the sensory organs of the Medusa sets up an excitation which is transmitted over the nerve fibres to the nerve cells. From the cells the excitation passes on to the muscles, and they contract. That process, in its entirety, is known as a reflex.

A reflex differs from the reaction process which we have noted among the lower organisms, in that the reflex is not dependent on any differentiated tracts to conduct the stimulation. A reflex consists of the transmission of a stimulation to a nerve cell by means of a nerve fibre, and the resulting production of a movement without any interposition of consciousness and will. As true reflexes in man, *i. e.*, movements which are entirely independent of the will, Hermann and other physiologists admit only the contraction of the pupil upon sudden illumination and the ejaculation of seminal fluid at the height of an orgasm. Other reflex

movements, such as the closing of the eyelids when the cornea is touched, the withdrawal of the hand from a hot object, the upward jerk of the leg when the patellar tendon is tapped, etc., may be more or

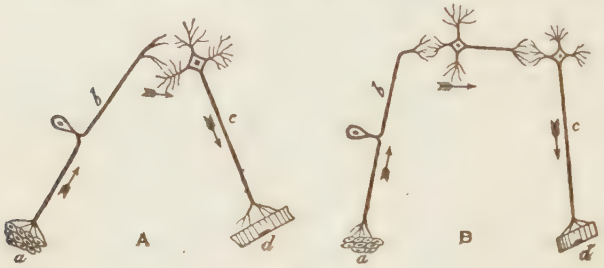


Diagram of reflex arc.

A. With two neurons, an afferent and an efferent neuron.
B. With three neurons, an afferent, efferent, and a connecting neuron.
a. A sensory surface. *b*. An afferent neuron.
c. An efferent neuron. *d*. A muscle or gland.

less suppressed by force of will. Even those movements which are consummated apparently automatically, respiration, heart action, digestion, and the like, may be altered by the same influence. Of what significance that distinction is in suggestion will be shown later.

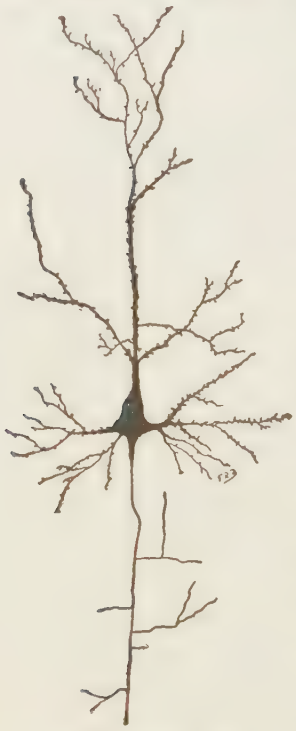
Reception of stimulations takes place in certain organs which are called sensory apparatus, or organs of special sense. Vision is transmitted through the eye, hearing through the ear, feeling or touch through the skin, smell through the nose, and taste

Three different types of nerve cells.
(Nissl-Edinger.)

through the tongue. To describe the process more definitely we may say that the nerve structures in the organs named transmit to the centre, the brain, specific sensory impressions of the stimuli which act on them. Through the eye only visual stimuli, through the ear only auditory stimuli, can transmit impressions. That is dependent on what is known as the law of specific sensory energy.

Having recognized the unusually important rôle which is assigned to the nerve structures in the reception of sensory impressions, and in psychic action as a whole, we must consider the formation of those nerve structures. In all the animals of high organism, man included, those structures consist of nerve fibres and nerve cells. These cells, as described in 1833 by Ehrenberg, are microscopically small formations, and each has one or more prolongations or processes. The form of the nerve cell is dependent on the number of those prolongations. Nerve cells with one prolongation usually are club or pear shaped. Those with two prolongations are spindle-shaped, and those with more than two have various irregular forms. Seen with a low power of the microscope the cells appear as a granular mass, cell protoplasm, having in its centre a glob-

ular or egg-shaped body, the cell nucleus. The prolongations or nerve fibres emanate from the surface of the nerve cell and form tree-like branches, for which reason they are called dendrites (*δένδρον* —tree).



The "psychic" cell.
(Ramon y Cajal.)

Whereas several processes or nerve fibres serve for the conduction of an excitation to the nerve cell, the propulsion from the nerve cell is effected by means of only one process, which is called the axone, neurite, or axis cylinder process, and which may be clearly differentiated from the other processes, it being the only one which can be directly followed into the nerve. To prevent the passage of the nerve excitation from one nerve fibre to an adjoining one, the axone is completely surrounded by a tubular sheath, the

function of which may be understood more clearly by comparing it with the insulating sheath of the wires in an electric cable.

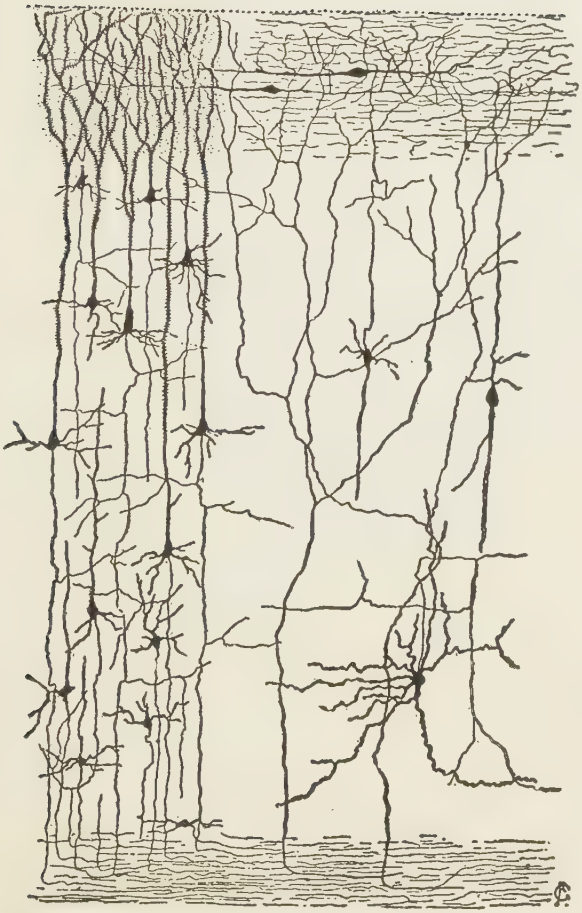
The nerve cell and all the processes or nerve fibres which pass from it are parts of a whole, a nerve unit, first conceived as such by Ramon y Cajal, and for which Waldeyer has introduced the name "neuron." The processes belong to the cell just as the extremities do to the body, and one cannot be separated from the other without suffering injury. If the nerve process be severed at any point between its end branches and the nerve cell, conduction is interrupted and excitation can no longer be transmitted to the organ or part of the body in which the nerve process terminates. A muscle becomes paralyzed, in other words, is no longer able to contract, when all of the nerve fibres which lead to it are divided. Moreover, just as the

The stages of growth of a "psychic cell." (Ramon y Cajal.)

motor nerves fail to excite actions in muscles after division of their nerve processes, so do the sensory nerves, the nerves of feeling, fail to accomplish their function when division of the nerve fibres, or pathological conditions in the nerve tissue, make conduction of an excitation to the brain impossible. Function, however, may be completely restored if a new nerve fibre grows from the stump which still is connected with the nerve cell, or if the divided nerve ends are united artificially by means of a suture.

The integrity of the nerve cell with which it was connected is essential to the new formation of a destroyed nerve fibre, for a nerve cell which has been destroyed cannot be replaced.

The brain is the central organ for all bodily and mental functions. According to Donaldson, the human brain is composed of about ten per cent of supporting tissues, blood-vessels and blood combined, and ninety per cent of neurons. The cell bodies of these neurons make up but two per cent of the entire volume of the brain, while the remaining eighty-eight per cent is made up of nerve fibres and their sheaths. These nerve fibres, axones, therefore, are mainly responsible for the size of the



The principal constituent elements of the gray substance of the fore-brain.

(After Ramon y Cajal.)

brain. In men its average weight is about 1,375 grams, and in women about 100 grams less. It is usually assumed that mental endowments vary proportionally with the weight of the brain. Still, it is an incontrovertible fact that in some persons of conspicuous mentality the brain has been of low weight, while, on the other hand, individuals with little intelligence have been found to possess very heavy brains.

Furthermore, science has not yet arrived at a definite conclusion as to whether extraordinary variations in the fissures and convolutions of the brain may be of special significance in indicating higher grades of mental processes. How old that theory is, is shown by the fact that Gall contended that brains rich in convolutions are an attribute of mentally superior persons. But that belief is not supported wholly by the facts. Gambetta, for instance, had a brain of very simple build and very poor in convolutions. It was said to weigh 1,160 grams, but later that figure was raised to 1,246, which is well below the average in weight. Another fact which upsets the theory is that brains extremely rich in convolutions have been found in persons whose mental qualities were by no means

above the ordinary. Neither the weight of the brain nor its wealth of convolutions, therefore, can serve as an absolutely dependable gauge of the mental qualities of the person.

The brain as seen from the right side, showing convolutions and fissures.

Notwithstanding the great variations in the arrangement of the fissures and convolutions of the brain, which at first view seem to be quite irregular, there is a certain positive law of disposal, so that in the majority of people the location of the fissures and the convolutions may be determined with cer-

tainty. Many investigators, including Lombroso, assume that typical peculiarities occur in the fissures and convolutions of criminals—in fact, that there are "criminal brains." Others, notably Waldeyer, deny this, and say the same deviations may be found in non-criminals.

To the cortex of the brain in man and mammals we relegate all activities which are executed with forethought and consciousness. The cortex contains a number of regions which differ functionally. Association fibres which pass from one point in the cortex to another, connecting them, increase in proportion to the increase in the number of these regions. Innumerable fibres diverge from the cortex to deeper parts of the brain. Some of those turn back and re-enter the cortex. Under the cortex lies a large layer of white brain substance consisting only of such nerve fibres and containing no nerve cells.

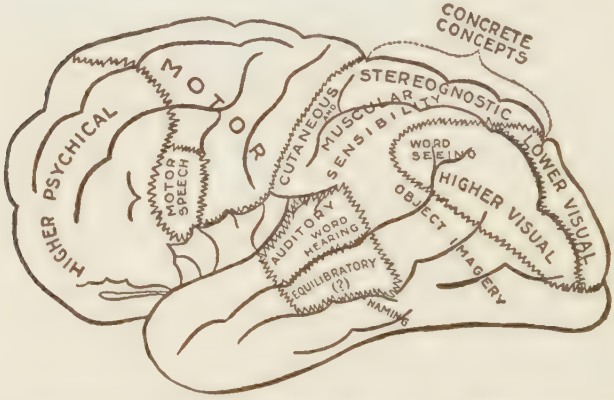
Investigations by Broca showed with certainty that all the regions of the brain cortex were by no means of equal value. Previously Gall had recognized that circumscribed destruction of the cerebrum, especially in the frontal region, produced a peculiar type of disease which manifests itself by

the inability of the sufferer to give expression to thought concepts by articulate speech, although no sign exists of paralysis of the muscles of speech or general intellectual weakness. Half a century later Broca determined that the third frontal convolution was important for articulate speech, and that in all right-handed persons—that is, in about ninety-eight per cent of the people—only the third frontal convolution in the left half of the brain was organized for speech, while in left-handed individuals the corresponding part of the right half of the brain exercises that function.

Other facts to be mentioned in the same connection are these: Hearing becomes disordered when the cortex of the temporal lobe is affected; vision is interfered with when the cortex of the occipital lobe is destroyed; smell is linked with the lower frontal lobe, and tactile sense with the convolutions of the Rolandic fissure and the parietal region.

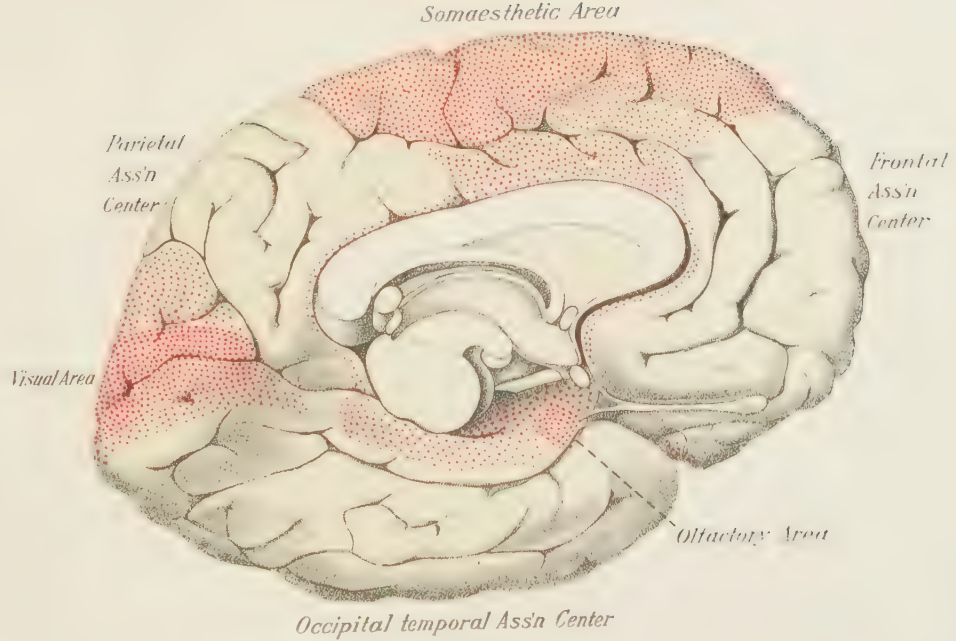
While we have no positive data in regard to the cortical localization of the sense of taste, it may be stated that each of the so-called five senses, as well as other perceptions which make up or influence our psychic life, has its seat in more or less sharply defined areas of the brain cortex.

In addition to the experimental and clinical investigations, the developmental or embryological studies of Flechsig have contributed much to the discovery of these centres and of their localization. Flechsig's view is that the entire brain cortex consists of a number of centres.

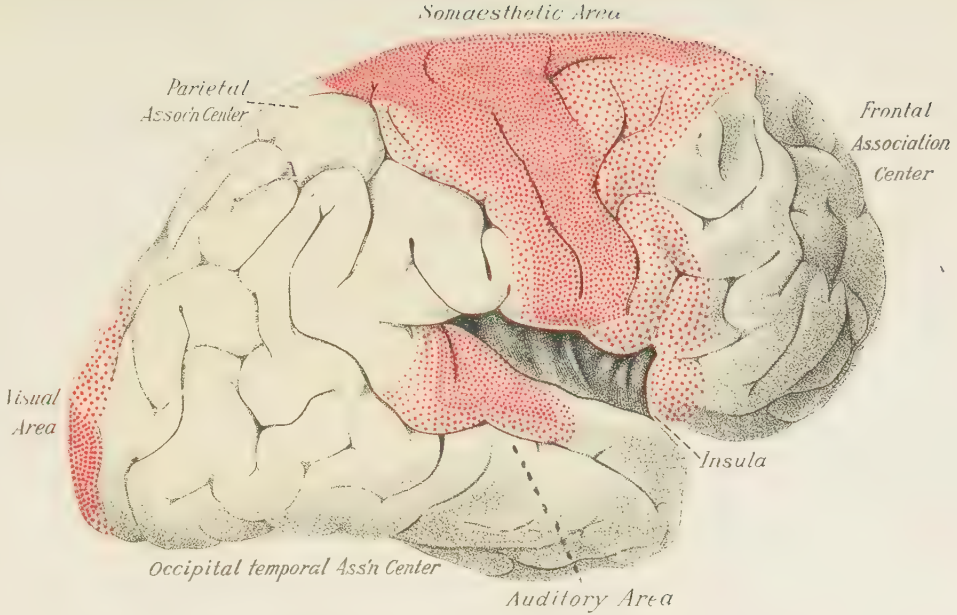


Zones and centre of the brain according to Mills. External aspect.

While the lower portions of the brain are already formed at birth, the cerebrum of the new-born child contains only a few completed nerve conductions. These bind together the exclusively sensory parts of the interior of the body with the seat of consciousness, the cortex of the hemispheres. Following birth one sensory conducting tract after



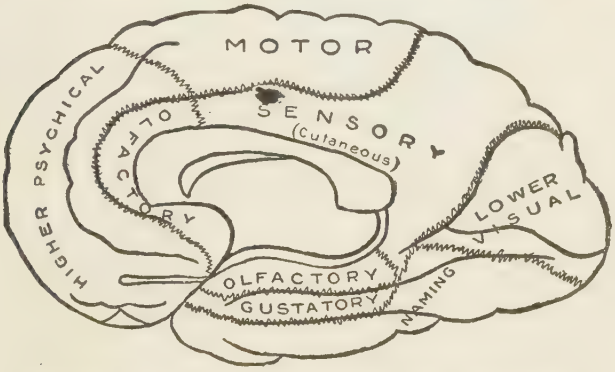
Areas of association, according to Flechsig.



Areas of association, according to Flechsig.
External aspect.

the other develops; first the one for smell pushes its way toward the cortex, and last that for hearing.

All the regions of the brain surface which physiology associates with the sensory impressions are nothing more than the areas in which lie the end-points of sense conductions in the cortex of the



Zones and centre of the brain according to Mills. Inner aspect.

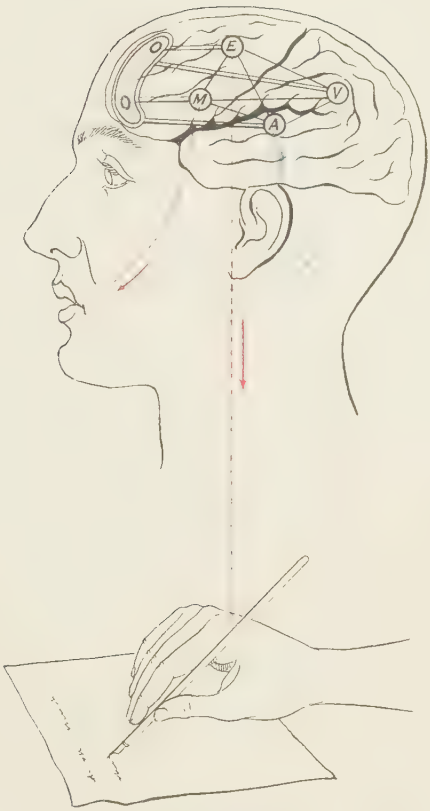
cerebrum. The largest sensory centre is that of tactile and muscular sensation. It is in the posterior central and parietal region, bordering on the region from which most of the voluntary movements are incited. It contains the termini of all conductions which are transmitted by tactile sensibility and by the organic sensations, including the sense of posture of all organs and parts of the

body—the termini, therefore, of all those conductions which bring one's own body within the sphere of one's consciousness. Flechsig calls this centre the "sphere for bodily sensations," or somæsthetic area.

Only about one-third of the cortex of the cerebrum of man is directly connected with the conducting paths which transmit sensory impressions and incite muscular movements; two-thirds are regarded by Flechsig as organs of thought, "psychic" centres. A month after birth the latter organs still are completely undeveloped, whereas the sensory centres already are entirely formed.

These "psychic" centres constitute an apparatus which combines the activity of our sense centres into a higher entity. They are centres for association of visual, auditory, olfactory, gustatory, and tactile impressions. They comprise the actual frontal lobes—that part of the brain which lies behind the forehead immediately above the eyes—a large part of the temporal and occipital lobes, a large section in the posterior parietal lobes, and, finally, the island, or insula, which is covered by the overlapping brain tissue.

The association centres of man materially exceed in size those of the most highly organized



Centres or systems of speech and their principal association (after Grasset).

A. Auditory centre.
V. Visual centre.
M. Motor centre of speech.
E. Motor centre of writing.
O O. Intellectual centre.

animals, even those of the anthropoid apes. To those centres, above all, man owes his mental superiority, and it is they which are to be considered most in mental disease.

To-day it may be accepted as a fact that the cortex of the cerebrum represents a mighty apparatus of ganglion or nerve cells—according to Donaldson's estimate there are nearly ten billions (9,200,000,000)—the processes of which are connected in the most intricate manner, both among themselves as well as with distant parts of the nervous system. Expressed with more precision, the process of transmission of sensory impressions and the molecular movements thereby set into action may be summarized as follows:

Through the action of external influences, the elements of the nervous system, those neurons of which we have already spoken, are placed in an altered state which they then conduct and transmit to other neurons. The excitations consist of chemical changes which propagate themselves along the nerve fibres. Unimpaired continuity of the nerve tracts, therefore, is the prime requisite for this conduction, the rapidity of which is in nowise influenced by the intensity of the excitant.

The sensory nerves, or nerves of perception, which conduct external excitations to the brain and the spinal cord do not themselves feel or perceive. Neither do the motor nerves, or nerves of motion, which conduct the excitations from the brain and the spinal cord to muscles, glands, and blood-vessels, themselves induce the movement. The nerves are simply conductive organs, comparable to telegraph wires which connect the sending and receiving stations with each other, while the apparatus in which the sensation takes place and from which the motor influences proceed lies in the brain and the spinal cord. Just as severance of a motor nerve is followed by paralysis of the muscle, gland, or blood-vessel which gets its stimulus from that nerve, so will severance of a sensory nerve produce loss of sensibility in the part of the body served by that nerve. Similar results also occur, as has already been pointed out, when the nerve conduction is interrupted by processes of disease.

The entire central nervous system is made up of gray and white substance. The gray substance consists of nerve cells, the white of nerve fibres. In the large brain (cerebrum) and the small brain (cerebellum) the gray substance lies on the surface

and forms the cortex, but in the spinal cord conditions are reversed, the gray substance there occupying the interior and the white substance forming the surface. After severance of the spinal cord or interruption of conduction in consequence of destructive processes of disease, all parts of the body which receive their nerves from the portion of the spinal cord lying below the point of interrupted conduction are completely paralyzed; not only have they lost their sensibility, but they cannot be moved voluntarily.

C. Contents and Course of Mental Activity

The sensory perceptions are the ultimate elements of psychic action, not susceptible of further analysis. From them is constructed our entire ideational life, with the accompanying emotional tones and impulses of the will.

Animals, too, have sensory perceptions by which certain reactions and movements are produced in them. But the manner in which man combines and assimilates sensory perceptions is what materially differentiates human psychic action from apparently similar functions of the animal brain and places it far above them.

A classic example of that difference is provided by the history of Clever Hans, the horse which, it was asserted, had been taught by its owner and trainer, von Osten-Sacken, to count and calculate so it could retain in mind and, when questioned, indicate its own age, the age of its master, and many other numbers. The explanation of the horse's apparent mental feats, which a few years ago created considerable psychologic interest in Berlin, is due to the psychologist Stumpf and his pupil Pfungst. Both these gentlemen showed that Clever Hans, whenever making a calculation, kept close watch of the expressional movements of the interrogator, especially toward the end. If, for instance, the horse were asked to give the product of five times seven, it scraped a hoof on the ground repeatedly until a slight movement of the head or even a minimal twitch of the eye of the man gave the animal the signal to cease pawing. As soon as the horse's eyes were covered with blinders or it was prevented in some other way from watching the questioner, its remarkable mathematical ability was absent. Moreover, the expressional movements of von Osten-Sacken, or of any other examiner, were not premeditated or

intentional, as tricks designed to deceive the public, but they occurred entirely involuntarily when the animal reached the figure which represented the answer to the question.

The five senses furnish to our minds the material for the interpretation of the outer world; from the specific qualities of the five separate sensory perceptions we construct the picture of the things which surround us. In order to measure the intensity of a perception it once seemed simple to resort to the expedient of measuring the intensity of the stimulus, on the supposition that a direct relationship must exist between stimulation and perception. It soon became evident, however, that two sense perceptions of equal intensity were not necessarily produced by external stimuli of identical strength.

Under certain circumstances, for instance, ordinary daylight will act so strongly on a very sensitive eye as to cause it to close, whereas only direct exposure to the sun's rays will bring the same result in a less impressionable eye. Intensity of stimulation and intensity of perception, therefore, are not directly comparable. In the same connection we must also consider excitability or sensi-

bility, which varies in different persons, and even in the same person at different times. From that we derive this law:

The greater the sensibility, the weaker will be the stimulus, and the lower the sensibility, the stronger must be the stimulus necessary to produce the same perception.

We are led to another law by these considerations:

We all know that in the stillness of the night our attention is attracted by noises which in the bustle of day remain unnoticed. A clock ticks with the same intensity at all times, but the ticks are perceived by us in varying degree at various times. From that we learn the same stimulation will be perceived to a greater or a slighter degree, or not at all, according to circumstances. The general law which may be formulated as to such variations of perceptions is this:

The weaker the already existent stimulus, the smaller may be an added stimulation in order to be perceived; the stronger the stimulus which is already present, the greater must be the added stimulation to be perceived.

Finally, because of its important bearing on the adjustment of our sensory apparatus, we must give

consideration to this fact: Only within certain confines can we have definite sensory impressions.

There is a so-called excitation threshold below which we are unable to perceive anything, and above which no intensification of external excitation can cause any increase of perception. That excitation border is not equally high in all persons, since people differ, some being of a delicate and others of a coarse organization; nor is the excitation border always the same in any one person, as we are able to adjust ourselves in diverse ways to the reception of stimuli. There is probably no gradation which can render one more deficiently impressionable to external stimuli than that of augmenting concentration of attention.

It is recounted of a great poet that he wrote dramas while surrounded by his boisterous children. The threshold of excitation for auditory stimulation in him was so high that the noise of his immediate surroundings did not become a conscious impression.

Who has not had the experience of being so deeply immersed in an interesting book as to become insensitive to many external sensory stimuli, which, because of his undivided and increasing at-

tention, did not succeed in passing the threshold of consciousness? On the other hand, we know that the most intense light blinds us, the most intense sound deafens us, and, therefore, that a sensory stimulus above the upper boundary of excitation can cause no increased impression.

Within the limits of this book we cannot enter upon the elucidation of all the details of those processes by which impressions of sight, hearing, taste, smell, and touch are conveyed to the brain. It would lead us entirely too far afield were we to take up the theories of waves of light and sound, or to attempt a description of the receiving and conducting apparatus of the two most important sensory organs, those of sight and hearing, or of the method in which the various qualities of light, sound, the body sensations, etc., are produced.

Still we cannot refrain from calling attention to a very interesting and most appropriate diversity in the arrangement of our auditory and visual apparatus. This lies in the fact that tone perception ceases simultaneously with the cessation of the tone-producing cause, while a visual perception outlasts its causal excitation. The ear is equipped with a mechanism similar to the tone-damper in a

piano, but for which the continued vibration of the drum of the ear would cause an uninterrupted and ultimately unendurable noise. On the other hand, light impressions upon the eye persist after the stimulus is removed, a fact which is proved by the well-known experiment of whirling a glowing coal rapidly in a circle with the result that, instead of a broken line, a complete fiery ring is seen. Furthermore, the fact of after action of visual excitation explains the occurrence of so-called persisting images or after-sensations. If we gaze directly at the sun for a moment when it is setting and then at the ground or the gray wall of a building, we see distinctly at the latter point of fixation an image of the disk of the sun. Similar "after images" arise under other conditions and may be studied experimentally.

The phenomena of so-called secondary sensory impressions is equally worthy of attention. Often a sensory impression produced by external stimulation causes a simultaneous impression within the domain of some other sense for which a corresponding external impression is lacking. For instance, I may hear a loud report and at the same time see a flash of light, although there may be no

flash, or, vice versa, I may see a bright flame flash up and with it hear a report, although there be no report.

In such cases there is an unusual transfer of an excitation from one sensory field to another, an apparent contradiction of the above-mentioned law of specific sensory energy. Under normal conditions such a transfer would hardly occur, because one sense organ cannot perform the function of another. Excitation of the optic nerve always will excite an impression of light, but never a perception of sound or touch; excitation of the auditory nerve always produces only perception of sound, and never of smell or taste. A secondary sensory impression, therefore, is produced not by an external excitation, but by a perception which undoubtedly is of morbid nature. That leads us into the realm of sense deceptions, which will be considered later.

Here it will suffice to say that the lingering of sense impressions has nothing in common with sense deceptions, and that neither the memory pictures which remain as a result of sensory perceptions nor the imaginary pictures which may be voluntarily aroused by their aid can in any way

be classed among such sense falsifications. All those phenomena are indications of healthy sensory, *i. e.*, mental, action, just as, for instance, a stick which is immersed in water appears to every normal eye to be broken, and a black square seems smaller than a white one of exactly the same size.

The brain cortex, as we have already seen, is that part of the central nervous system which is most distinctly influenced by the experiences of the individual. It serves for the adaptation of the individual to the conditions of life in which he is placed. What constitutes the processes which take place in the brain is not yet clear. With Du Bois-Reymond, we must acknowledge especially that we know nothing of the manner in which nerve tracts are stimulated by ideational processes, nor how conscious perceptions are produced in our brain by external sensory stimuli.

Nevertheless, the results of modern scientific investigation force us to assume that the brain cortex possesses in a well-developed degree the ability to retain impressions which it has received, and, by means of numerous association tracts, to combine them with other impressions. We shall have to assign to the brain cortex also the capability of

transforming the excitations which it has received into movements, or of preventing the occurrence of such movements. A short survey of investigations teaches us these facts:

As a result of the varied stimulations which the external world produces upon our sensory organs, certain regions of the brain cortex become excited and give rise to perceptions of sight, hearing, taste, smell, or touch, the last class being further subdivided into perceptions such as of temperature, pressure, etc. The perceptions which arise in accordance with the excitation of the cortex pass away with the disappearance of the excitation. The cortex, however, retains a record of the excitation which persists as a memory picture, or image. That record for the time being we fail to notice, but later, when the same perception or a similar one arises, we remember the previous perception—that is, we remember that we have seen the same object, or heard the same tone, or perceived the same odor before. All our concepts are memory pictures of perceptions. Congenital concepts do not exist. The memory picture probably is not bound to those cells in which perception arises; it is better to assume that the excitation

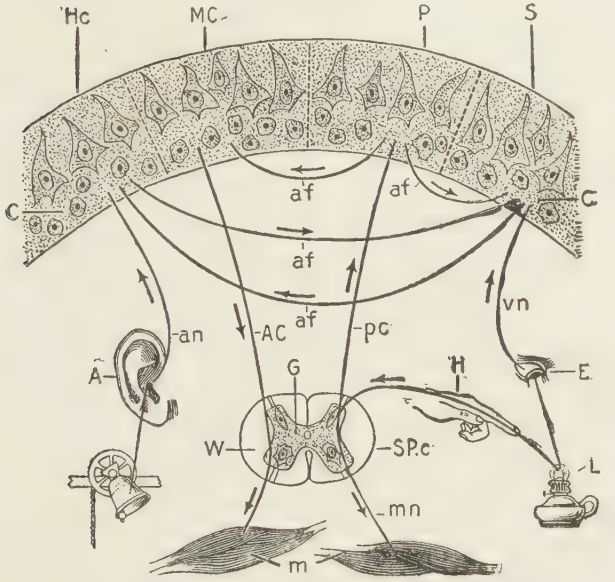


Diagram representing the action of the nervous system.

C. Brain cortex. *S.* Centre for sight. *P.* Centre for pain perception. *MC.* Motor centre. *Hc.* Centre for hearing. *SP.c.* Spinal cord. *G.* Gray substance (nerve cells). *W.* White substance (nerve fibres). *pc.* The nerve tracts making up the posterior column. *AC.* The nerve tracts making up the anterior column. *af.* Association tracts. *E.* Eye. *A.* Ear. *H.* Hand. *m.* Musculature. *L.* Source of light. *mn.* Muscle or motor nerves. *vn.* Nerve of vision. *an.* Nerve of hearing.

passes over from the cells of perception to the cells of memory.

If a certain part of the cortex of the occipital lobe in man becomes diseased, the patient no longer recognizes the most ordinary things about

him unless he takes them in his hand and touches them. He is "soul-blind," and yet his eyes functionate in a perfectly normal way, for he follows objects with his vision and goes out of the way of obstacles in his path. That fact makes it extremely probable that sensory impressions and memory pictures are deposed in different nerve cells of the brain cortex. Otherwise it would be inexplicable how, notwithstanding the orderly operation of sensory impression, amnesia can persist.

Through a new combination of old memory images, pictures of the imagination arise. These play an important rôle not only in artistic activity and in scientific work, but also in every-day life, since every action or occurrence is associated with a consideration of the possible results.

The precision of an idea is dependent on the intensity, the duration, and the frequence of the occurrence of the sensory perception which forms the basis of that idea, and on the time which has elapsed since its last occurrence. If the same or similar sensory impressions do not again and again rivet the material alterations which have taken place in the memory cells, then, in consequence of metabolic influences, these same changes will dis-

appear. The molecular changes in the nerve cells which are not in any way perceptible by means of any of our present aids, become blotted out and the memory pictures are forgotten. The same process, amnesia, may also occur, as we have already mentioned, in consequence of disease in certain parts of the brain cortex. To understand how it is possible that the sensory apparatus may functionate normally while at the same time no memory picture may remain for any former sensory impression of the same or a similar kind, we must constantly keep clearly in mind the difference between cells of sensation and cells of memory.

The sequence in which concepts occur or the path which excitation takes in the brain cortex is determined by the associative connection which exists among the memory cells. The connecting tract between memory cells becomes passable as a path of least resistance in varying degree, depending on the frequence, the persistence, and the unison of excitation of the cells connected by the tract.

Under certain conditions "passable" connecting tracts—that is, tracts which are frequently ex-

cited—functionate entirely automatically. A pianist, for instance, will be able to execute faultlessly a piece which he has played frequently, and yet at the same time his mind may be absorbed in some subject entirely unrelated to the music. In the same way are explained the dangerous feats not infrequently accomplished by sleep-walkers, such as climbing over roofs, walking upon window sills, etc., feats which the performer when awake could hardly have achieved. In such persons there is, on the one hand, an exclusion of the consideration of the danger which is associated with such actions, while, on the other hand, the associative connecting tracts in the somnambulists are sufficiently passable to enable them unconsciously to carry out the movements necessary to prevent their falling or coming into contact with obstacles.

Other important elements in the current of association of ideas are the distinctness of the memory picture on which recognition depends, the emotional tone which accompanies the concepts and of which we will speak later, and the extremely variable influence of mutual retardation or acceleration which the memory cells exert upon one another. The phenomena already considered must remove

any doubt that the processes of the mind are functions of the cerebral cortex. The sensory impressions which bring our minds into relationship with the external world and form the basis of all our concepts leave in the cortex actual "imprints," molecular alterations of the nerve cells, which in turn incite other changes or movements, in the nervous system.

Psycho-physical parallelism is the term used to designate these close relations between the psychic processes and the material changes in the nervous apparatus, especially in the brain cortex—the relationship, in other words, between the action of the mind and the bodily processes. This psycho-physical parallelism has been very carefully investigated by Bumke, and his conclusions have been published in a very interesting dissertation. He arrives at this conclusion:

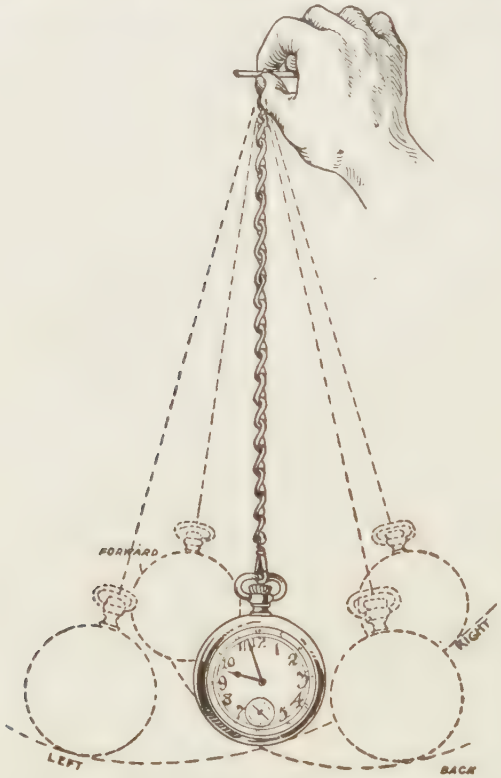
"While it is true that an impression cannot be measured, nor can it be said that it is so and so much greater than another impression, nevertheless many phenomena of mental life are open to exact investigation because every mental process is, after all, produced and excited by physical excitations which come from the outside, and be-

cause those processes almost as regularly finally lead to bodily expressions, to motor discharges which we designate as expressional movements. We are able to measure the two end links of this chain; we can estimate the stimulus by means of which the processes of consciousness are uniformly aroused, and we can analyze with precision the bodily reactions which are observed to accompany or to follow with regularity the course of these physical processes."

Bumke calls special attention to the fact that each of the various emotional states is accompanied by a variation in the size of the pupils, by a distinctly measurable variation in the rhythm of the heart and of respiration, and by corresponding changes in the blood pressure. Such expressional movements, taking place involuntarily, furnish an explanation for "mind-reading." The mind-reader, on the one hand, depends on the fact that the mere expectation of having our thoughts read leads to a corresponding action of our muscles without that action being influenced in any way by the will, and, on the other hand, he must possess extraordinary skill in recognizing minimal changes of expressional movements, especially those regulated

by the facial muscles. A slight movement of the head, a glimmer in the eyes, a deep breath, reveals to the mind-reader, even though there be no contact between him and the object of his experiment, that the hidden thought is upon the verge of disclosure. Similar expressional movements which will be interpreted as evidence of dissent instead of assent, plainly indicate that he is following a wrong track and that the solution of the problem must be sought in another direction. The trick of Clever Hans, to which we have already alluded, depends entirely on such skill. The occurrence of such expressional movements may easily be demonstrated in a rough way by the following experiment: Hold the free end of a string having a weight attached to the other, or the free end of a watch and chain, between thumb and forefinger, so that the weight will swing freely and constitute a pendulum. Bring the weight into a state of rest. Concentrate your thoughts upon the motionless pendulum and keep thinking, and saying to yourself, "Now the weight will move forward and backward"; with proper concentration of mind, the weight will, as a result of minimal, unconscious, and involuntary muscular movements, move to and fro. Then change your

thoughts to "the weight will now move from side to side," and in a moment the direction of the



Experiment showing influence of concentration of thought upon muscular movements.

movement of the weight will have changed to accord with the new train of thought.

For every sensation, for every idea, there is a corresponding brain vibration, a movement of the molecular atoms in the brain. Furthermore, every brain vibration causes a perception, an idea, whether we be in a waking state or in a dream. There can be no thought without corresponding vibration of the brain. All our perceptions, without exception, take root in the brain. I may burn my foot, prick my finger, inhale a fragrant odor, or eat a palatable dish, and in the specific instance the impression apparently is perceived in the foot, the finger, the nose, or the mouth, but it really has been transmitted by the nerves to the brain, and it is that organ which causes the perception.

Even more remarkable is the fact that an extremity need not be present at all, and yet we may believe that we have feeling in the missing member. Often a person whose arm or leg has been amputated has sensation in the missing limb long after it has been removed. That shows that the habit of feeling something in one part of the body or another may be the direct cause for sense perception. Simple imagination, an entirely internal idea, may dominate perception to such an extent that sensations of pain, intense disorders of function,

even death, may result. Such extreme cases, to which we will again refer, are numerous in literature.

That every thought, every association of ideas, is a brain vibration by which molecular movements are set up in the nerve cells is true even when the perception has not been caused directly by a sensory impression or when the perception directly follows a simple memory picture, or when it is based on a sense deception. Hence, although emotional processes, under the influence of materialistic views, were regarded as secondary to bodily phenomena, Berger has demonstrated in a convincing manner that the physical changes in the brain all are of secondary nature and subsidiary to psychic processes.

The question as to the nature of the material brain processes which accompany mental action is far from being solved, as Bumke rightly emphasizes. We cannot expect the methods of investigation of brain physiology, no matter how exact they be, to be able as yet to explain in every detail the causal connections of brain processes and mental action and their psycho-physical mutational relations.

We may as well admit that thus far in the field of physiological psychology we hardly have ad-

vanced beyond recognition of simple facts of experience. Thus, for instance, we do not even know with certainty how color concepts arise in the brain. We only know that color is present neither in the object nor in the rays of light; that it is an excitation of the retina, or, rather, of the endings of the optic nerve in the retina, although there is not the slightest consciousness of any contact between the retina and the vibrating waves of ether. While unable to give a detailed account of the manner of production of concepts, but firmly confident that exact methods of investigation must bring about a solution of the problem, we will content ourselves for the present with recognition of the fact that sensory impressions furnish the material from which the mind constructs for itself a concept or idea of the external world.

Concepts are compound formations from elementary sense impressions. One perception does not follow directly upon another, but perceptions are connected with one another according to certain laws and rules. The laws governing associative combination of concepts must be considered next.

Every concept calls up as its successor either a concept which is similar in contents or sound of

words, or a concept with which it has simultaneously arisen. Similarity and simultaneity of impressions, therefore, are the basis of so-called concept association, association of ideas.

In the first case the concept of a yellow object may be followed by that of gold, or the concept of a part by that of the whole, and vice versa. Analogously, a concept will produce its opposite, or the similarity of a word alone may lead to the serial placing of ideas otherwise unrelated. The association of ideas according to the principle of similarity was recognized even in the time of Aristotle, who adduced this example: Milk—white—air—moist—autumn, etc.

Quite as common and just as important in our conscious mental life are associations of the second kind, those based on the simultaneity of sensory impressions. Thus a single line of a poem recalls the remaining ones, a part of a well-known melody brings back the entire tune, the concept of an acquaintance calls up the idea of his dwelling, a view of a country previously seen restores the concept of the life and activity of its population, etc.

Not infrequently concepts seem to spring up in our consciousness entirely without cause, being

produced neither by external impressions nor by other related concepts—independent ideas, so to speak. If, however, we make a thorough search, the apparently broken chain of concepts may again be united so that, by tracing the course of ideas backward, we are able to discover the natural relationship between the seemingly fortuitous "sudden idea" and those which preceded it. Freud's method of "psycho-analysis," of which we will speak in more detail in another chapter, is based upon this fact.

Olfactory impressions have a remarkable faculty of reproducing concepts and pictures which in the past were simultaneously present with them. With truly magical effect the fragrance of a perfume may bring into the light of consciousness from the recesses of the memory the concept of a person, of all his attributes, and of our mutual relationships. Finally, to explain certain independent concepts which arise in us without any discoverable cause, we must remember that under the threshold of consciousness in the subconscious realm there is a constant play of processes, and that this occasionally assumes such proportions that these processes become perceivable by our consciousness.

Sense perceptions and concepts are always accompanied by positive emotional tones of pleasure or of displeasure. These emotional tones also leave their imprint in the form of memory pictures. We are angry or we are pleased, we are ashamed or we are contented, in the recollection of certain happenings. Certain emotions which are useful because of their origin and persistence as part of the struggle for existence, and which serve partly for the protection of the individual, partly for the benefit of the direct descendants, partly for the advantage of society, are known as feelings of instinct, and are congenital. Representing the inherited experience of centuries, they guide us in avoiding the injuries and the dangers which threaten the existence of man. Moral sense, or conscience, also is based, according to Exner, upon perceptions that must be classed with those social instincts which were developed in the strife for existence.

Instincts, therefore, consist in the automatic performance by man of what is appropriate in a way which is entirely independent of any process of consciousness.

The entire emotional life of man and all of his

actions are dominated by tones of feeling, by the transmission of feelings of pleasure and of displeasure from one concept to another. Therein mainly lies the cause of our sympathies and antipathies, of our prejudices for or against persons or things. Every concept is modified by numerous emotional tones, which vary both in quantity and quality, derived from the impressions which have caused the primary concept, as well as from the transmission of numerous associative connecting concepts. Thus arise all the complicated feelings and moods which, with their many shadings, are nearly always found in developed conceptional life.

The rapidity with which ideas flow, varying as it does with the individual, and not always remaining the same even in any one person, is influenced to a high degree by the emotional tone. If one is in a joyous mood, ideas flow freely and easily, one arising from the other; a depressed mood, on the other hand, dams the stream of ideas. In its most extreme form the latter condition is shown in the morbid increase of the basal emotions. In the depressed person, the sufferer from melancholia, the course of ideas is greatly retarded; the

thoughts drag lazily and the depressive picture is retained with tenacity in consciousness. On the other hand, in mania, in which a causeless, joyous excitement predominates, the associations, being frequently produced by mere external similarity of words, are accelerated to such an extent, and the coupling together of thoughts is so rapid, that a mental state ensues which may best be described by the words "flight of ideas."

Naturally, practice is another great influence in the flow of our associations. Associations which have taken their course countless times in a similar form will flow with lightning-like rapidity, while new, unfamiliar chains of thought must be arduously formed. The adept chess-player sees at a glance many possible combinations of the figures on the board, while the beginner regards each piece and slowly evolves each possible move.

It is a sign of disordered thinking when thoughts come so abruptly that the transition from one idea to another can no longer be recognized. Through the orderly current of concept flow we must be able to trace a logical connection of thought, which is like a thread of brighter color in a mass, and which, while it may skip immaterial connecting links of

associated ideas, must never lose sight of the material connection of concepts.

In the waking, fully conscious state it is the will which weaves that thread. The association laws, after all, give us only the form, not the contents of thought. They teach us how we associate, but not what we associate. In every concept the connecting possibilities are innumerable, but only certain thought connections are chosen, and the more frequently they are selected, the more infallibly do they recur. Here habit and practice play a large rôle, as already indicated. Our interest directs us in connecting the significant ideas and in disregarding others, and when this process is repeated again and again, certain currents of thought are gradually made to flow with the precision and regularity of clockwork.

Whether we choose one idea or another from the endless variety of association-material which is furnished and proffered by the sense perceptions and memory pictures is not determined by association laws, but by the personal will. It is the will which brings order into chaos, combining the percepts into correct concepts by means of which we are able to pass from positive things to those which

are uncertain and need to be proved. It is the will which occupies a directing position in the midst of the entire mental action, which weaves a fabric from the momentary sense impressions and from the memory pictures stored up in the brain cortex, and which controls the emotions that accompany our perceptions and prevents them from obtaining undue influence over our actions.

Again, it is the will which produces attention, the power of thought concentration, by means of which we are enabled for long periods of time to direct the sensory apparatus and the conceptional contents in a certain direction, without allowing ourselves to become confused or to deviate from things material to those which are immaterial. The acme of mental action is represented by apperception, that clear conception of ideas carried to our consciousness by sensory impressions combined with dependent judgments and conclusions.

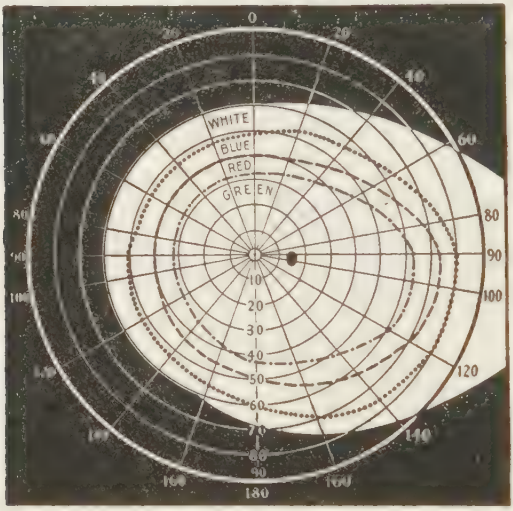
Here again we must emphasize the fact that we know nothing of the manner or method by which sensory impressions become transformed into conscious perceptions. The mechanism of thought differs from that of the most complex and perfect machine in this feature: No matter how well the

latter may operate and fulfil the most complicated functions, it never possesses any consciousness of its own activities.

For the time being we must content ourselves with accepting this self-consciousness of mental action as a fact proved by experience. To how great an extent mental processes are dependent on the conditions of bodily organs is strikingly shown by a fatigued brain. It is in direct proportion to the increase in the degree of fatigue that the brain loses the capability of recognizing clearly the perceptions produced by sensory impressions. Attention, without which apperception is impossible, wanes with an increase in the degree of brain fatigue. This fatigue may be measured in a simple manner by aid of perimetry or the test of the visual field. By means of perimetry, for instance, we can easily demonstrate in children that at the end of the lesson which has fatigued them, when they are unable longer to put forth the same amount of attention as at the beginning, their field of vision has become restricted in a marked degree. The intimate relationship between mental action and the nervous apparatus, therefore, has once more been demonstrated clearly by the dependence of

attention and apperceptional capability upon the intensity of sensory impressions.

The following incident exemplifies well the working of attention: Two telegraphers are occupied



Perimeter chart.
Normal field for white and colors. (Red, blue, and green.)

at their respective apparatus, the one receiving, the other sending a despatch. Both are experts in their work. The operator at the sending apparatus, in the sounds coming from the receiving apparatus of the other man, recognizes a familiar name and, curious to know more, calls to the receiving oper-

ator, who has transcribed the message, "What has Jenny N. been doing now?" To his astonishment, his absent-minded colleague replied, "I don't know, I wasn't paying attention," and keeps right on receiving and transcribing. This operator had been receiving messages faultlessly, had been transcribing them correctly word for word, had heard and answered the question of his friend without interrupting his work, and, as he afterward admitted, had been thinking of nothing else than his wife, who was sick at home. This occurrence shows us an automatic activity of the brain so perfected through long practice that attention could be entirely excluded from the work in hand without in any way disturbing the orderly process of brain function involved in it.

From what already has been said the dual activity of mental life becomes evident. The one element, which may be designated the objective activity, introduces to us the exterior world, while the other, subjective mental activity, recognizes itself. Just as the concepts of the objects which lie outside of us furnish the building material for thought, so the feeling of "I" or of "self," which is made up of emotional tones combined with

the sensory impressions that are transmitted to consciousness, forms the basis of the ego. Objects presented to us and the feeling of ego now stand opposed to each other as an outer and an inner world respectively. The feeling of selfhood is by no means born in us in its complete form. Just as we must learn to orient ourselves in regard to the objects in space, although the crude, vague feeling of extension, of body, as such, is innate, so we must learn to identify ourselves as individual personalities, although the "I-ness" also is indissolubly bound up with our nature.

Small children speak of themselves as individuals standing outside of themselves. The philosopher Fichte gave his friends a feast on the day his little son for the first time referred to himself as "I." The realization of plurality, of individual existences, which already is actually furnished with the nature of our minds, is consciously expressed by the individual personality, by the growing being, as soon as he recognizes himself as "I."

Therewith is taken the decisive step from simple conceptional consciousness to the consciousness of self. It is that which we call "I," or, psychologically, our "ego." Whatever the child feels, con-

ceives, wills, from the time of the transition, it feels, conceives, and wills in respect to its own "I." While the child-being was still a neutral person, it made no clear distinction between itself and other objects. For such a being there existed only a world of which it itself forms only a part. The moment that the "I" awakens, all things are divided into two worlds, an inner one, the "I," and an outer one, the "not I," a deep chasm separating the outer and the inner world, the foreign one and one's own. The ego, having awakened into self-consciousness, henceforth stands in the centre of human mental action.

The ego, the individual mind, feels only itself while it confronts everything else, perceives it. The individual mind, however, tends toward a maintenance of itself against the non-ego, the outer world. The individual emotions and instincts are directed toward satisfying the ego—they are egoistic.

It is free, uninhibited action or activity in accordance with the innermost natural laws and desires that furnishes pleasurable feelings to the ego. Limitations from the outside, by foreign power, checking of natural desires and tendencies, produce unpleasurable feelings. Since the earth, however,

furnishes only a limited space in which each individual with the same desires and traits as those of others also wishes to assert his own ego and to claim for it the place which belongs to it, the natural egotism necessarily leads to conflicts, to a competition, a battle, for the goods of the earth. On this principle of struggle, which, again from selfish considerations, leads to a recognition of foreign personalities, and which from considerations of utility makes room for altruistic feelings and thus sets barriers to the unrestrained activity of one's own will, depends the essence of existence, the entire development of the many.

Brief consideration must be given, too, to articulate speech, one of the most important expressions of mental activity, and one which distinguishes the human being from the anthropoid ape and from all other highly developed mammals. This faculty is dependent on a number of extraordinarily complicated movements of lips, tongue, palate and larynx. While the other expressional movements which arise as associates of psychic processes, such as laughing and crying, mimic movements of the facial muscles, blanching or blushing of the face, nodding and shaking of the head, gnashing of the

teeth, etc., usually serve only for expressions of the emotions and ensue more or less involuntarily, articulate speech is employed entirely in accordance with our own desires for the expression of our sensations and ideas. Speech and thought develop together and interdependently. Speech is of the greatest significance for voluntary thought.

A long and complicated process of thought can no more be carried out without the use of words, whether spoken or unspoken, than a problem in mathematics can be solved without the use of figures or letters.

The function of speech is situated in the cortex of the cerebrum. In the posterior part of the third or lower frontal convolution, the human being possesses a convolution which is entirely absent in the ape. This is the speech centre of Broca, and destruction of it deprives man of his faculty of speech.

Memory pictures for sounds of words are preserved in a certain place of the temporal lobe. Processes of disease in this location are followed by a loss of memory pictures, and the result is that words, although heard, are not apperceived. This condition is designated as "soul-deafness."

In a subsequent chapter on the mind of the

child we will recur to the development of the faculty of speech. On the other hand, we cannot enter upon a discussion of the freedom of the will, notwithstanding its apparent importance. Here we merely will say that the views of the older psychology, which assumed a special will as the cause of our actions, can to-day lay no claim to validity. There exists no proof to support the assumption that the brain cortex or any other portion of the brain can produce a movement of itself without exterior influence.

That which appears to us as free will is the result, so far as we now know, of processes in the brain cortex which have resulted in consequence of stimulation from the outer world. Our actions, therefore, are the product, just as are our processes of thought, of existing necessities, and are dependent on the law of causality.

It goes without saying that this law cannot be called upon to excuse criminal acts; that, moreover, legal accountability and responsibility for such acts remain in full force, notwithstanding the determinism of the will, unless pathological brain processes whose existence can be proven unquestionably make certain the diseased character of criminal acts.

D. Peculiarities of Mental Activity

Some peculiarities of mental activity have already been touched upon. We have seen how simple it is to explain the perilous feats of the sleep-walker and how "thought-reading" is accomplished in an entirely natural way—through the reader's highly developed faculty of observing expression-movements which arise involuntarily.

In considering this subject we should also refer to such "occult" phenomena as telepathy, distant action, spiritistic manifestations, etc. Of course, before any serious attention can be paid to such matters, the actuality of the occurrences must be established beyond doubt. This has not been done up to the present time.

As yet we have no positive or trustworthy evidence that thought transference can be effected in any other manner than by actual contact. Those instances of thought transference at a distance which are reported to have been observed are not of sufficient force to counteract the suspicion that self-deception or wilful trickery is involved in them. Even if we did admit the possibility of telepathy had been proven, we still should have

to uphold the fundamental law of all scientific investigation—that every manifestation which may be perceived by our senses can be produced only through natural causes. Science could never, without sacrificing its very self, adopt the viewpoint of the mystics, who are all too prone to explain enigmatical happenings as demonstrations of the supernatural.

Even to-day the judgment of men otherwise exact in reasoning is obscured by the survivals of a period of unbridled credulity, when all too much readiness was shown in accepting incidents as miraculous. Recognized authorities like Zoellner, du Prel, Romanes, and others have not been able entirely to free themselves of awe for mysticisms.

It cannot be repeated too often that human cognition has its limitations, but these limitations are being extended constantly through endeavors to find natural explanations for actual occurrences. Science cannot enter into any controversy with mysticism. The absence of any common basis, the complete difference in principles of recognition, render any mutual understanding impossible. Science must insist that the question of a suspension of natural laws cannot arise even in relation

to apparently wonderful happenings. It may well be that our views regarding the laws of nature will require modification as science progresses, but we must keep uppermost in mind the fact that those manifestations of mental life which still appear inexplicable are nevertheless subject to the laws governing all actual occurrences.

Flammarion, the noted French astronomer, has attempted to explain telepathy and other "occult" phenomena as natural manifestations. He cannot be classed among the mystics, for he takes direct issue with them in acknowledging that exclusively natural forces must play a part in the production of thought transference at a distance. But he accepts such thought transference as a proven fact. He says expressly that in telepathy the mind does not disengage itself from the body and rush off into space, nor does he believe any mental action can be independent of the central nervous system. Flammarion came to a recognition of telepathy as a fact because of much evidence which he considered trustworthy, and he explains it to his own satisfaction as follows:

"If we sound a string of a violin or a piano, then another string at a certain distance will in-

tonate with it and adopt the tone of the first. A wave movement of the air carries the tone with it. If we set a magnetic needle into motion, a second magnetic needle placed at a certain distance will fluctuate in conformity with the first one, by simple transfer of the movement through the air, without any contact existing.

"In Paris we speak into a telephone transmitter. The electric connection causes equal vibration of a similar plate in Marseilles. It is no substance which is transmitted, but only a wave. A star billions of kilometres distant in the infinity of the heavens is not visible to us on earth. But if I place a photographic plate behind a lens, the ray of light from the star will influence the impressionable substance and leave a picture on it. Is not this fact more astonishing than the passing of a brain wave over a few kilometers to transfer itself harmoniously upon another brain? Through the 'emptiness' of space a solar upheaval produces on our earth at a distance of one hundred and forty-nine millions of kilometers a northern light or a magnetic disturbance.

"Every living being is a dynamic centre, and every thought a dynamic action. There exists no

thought without a corresponding vibration of the brain. Is it strange, therefore, that this vibration should be transmitted in the same manner as in a telephone, or in a photophone, which transmits words by means of light, or as in wireless telegraphy?"

Needless to say, we limit ourselves to a mere reproduction of Flammarion's attempt at an explanation, without endorsing or adopting it; for even the comparison of telepathy and wireless telegraphy, in which a receiving apparatus properly attuned for the reception of electric ether waves of only the same intensity is capable of receiving despatches, shows the conditions are so disparate that they cannot be regarded in any way as satisfactory evidence that telepathy is possible. Moreover, no degree of "wonderfulness" can be a measure of credibility for science, which insists on *positive* indications.

William James, referring to experiments conducted "by a few more careful observers since 1880," says those experiments, taken in the aggregate, make it unreasonable to doubt any longer that occasionally a telepathic relation may exist between one mind and another. He adds that,

strange as it may appear, there seems evidence, small in amount but good in quality, that a person, by exerting his will, may cause himself to appear present to another at a distance. Notwithstanding James, we repeat that any serious discussion of telepathy or of other mysterious manifestations of mental activity is impossible until the facts have been established beyond doubt. The literature on this subject still appears to be too chimerical for acceptance as the basis of any explanation which would satisfy the logic of cause and effect or which in the light of subsequent research would not prove absurd.

Among the peculiarities of mental activity must also be classed that enhancement of the psychic, more particularly of the intellectual, faculties into superiority over the average endowment, which constitutes the essence of genius.

Genius differs from talent in its capability of finding what is new. Talent is great only in so far as it imitates and modifies existing models; it lacks productive force. Genius, on the other hand, travels its own roads; it manifests itself not in reproduction but in the generation and the development of new thoughts. While in exceptional cases

genius may cover equably all the intellectual faculties, in the vast majority of instances it is one-sided. There are geniuses in mathematics, in language, in music, or in other fields, but rarely is there one in whom are combined manifold productive abilities.

The traits of genius usually develop at the expense of other capabilities, so that the productive capacity in one direction towers far above the average, while the capability in other respects remains far behind the ordinary. The plus on the one hand is offset by a minus on the other. This disproportion frequently is so marked that it borders on the pathological and leads us to suspect a relationship between genius and insanity. At any rate, geniuses of entirely normal mind—that is, those having extraordinary capability in one field without any corresponding defect in another—are exceptional.

That this should be so is quite comprehensible if we but consider that brain energy cannot expend itself entirely on one function without causing a stunting of the activities of the remaining ones. Genius always is innate—frequently a heritage from far-distant ancestors. It is not always transmitted to direct descendants. For generations it may remain latent, and then manifest itself un-

expectedly, often doing so under completely unpropitious external conditions. While the conditions of heredity in this regard are still understood in only a limited degree, we do know from experience that genius enforces itself with the strength of nature's elements. There is no exaggeration in the statement that if Raphael had been born without hands he would nevertheless have become a great painter. In Beethoven's case we know that some of his most marvellous tone elaborations were produced when he was almost totally deaf. Many more examples might be given to show that genius will attain its predestined height in spite of adverse external conditions.

In the genius the sensory impressions and the memory pictures are crowded with coercive force into a definite course, the powers of attention and apperception concentrated to such an extent on a certain object that the existence of the remaining world is practically ignored. This accounts for the extraordinary abstractedness, or absent-mindedness, which has so often made great scientists and artists objects of ridicule.

The new idea which absorbs the individual's entire interest has its life history like the human

being who has conceived it. Like him it is a new creation, like him it has originated from an insignificant germ, has taken form, has developed, and has been brought forth. No human brain, not even that of the greatest inventive genius, can continuously bring forth new ideas. Genius cannot be acquired; it must be innate. Where the disposition for genius is lacking, it cannot be created through indefatigable endeavor. Still, no genius can assert itself without persistent work. Genius does not produce without effort. "Inspirations" do not appear as finished manifestations. In order not to go astray during acts of thought association, genius requires assiduity, persistence, and material concentration of the will. The psychic process of the genius differs not in kind, but only in degree from that of other persons.

Like the manifestations of ordinary mental action, the manifestations of genius are dependent on the acquisition of a train of ideas in consequence of sensory stimulations. Genius unattended by extensive knowledge may be compared to a skilled workman who for want of proper material or tools is unable to carry out his ideas. That which gives to genius its predominance is the facility with

which, in consequence of its perspicacity and extraordinarily delicate powers of combination, it is able to recognize the orderly connection of complicated conditions and almost intuitively to grasp their significance.

Sleep also is one of the peculiarities of mental activity in which the psychic processes normally experience an alteration. When external stimuli are excluded and the cells of the cortex become fatigued, association comes to a pause and there ensues a condition of unconsciousness which we designate as sleep and which differs essentially from unconsciousness due to fainting or an extravasation of blood into the brain.

During sleep a more or less complete arrest of all psychic processes occurs. Dreams are the only exception to that rule. The most important function of sleep, that of giving the nerve elements which have become worn during the waking state a chance to recuperate through brain rest, is frequently hampered by the concomitant of sleep, the dream. Active and restless dreams interfere with the recuperative effect of sleep.

Dreams, according to Wundt, are fantasy pictures, hallucinations, which at times seem to pos-

sess all the reality of sensation and consequently are taken as real sensations by the dreaming person. Dreams are memory pictures of recent and remote happenings which, in a lawless play of association of ideas, become indiscriminately intermingled. They have a superficial resemblance to normal activity in so far as they connect the memory pictures into new and unusual relationships. But they differ from normal activity because the control of the governing ego is wanting, the connection of the memory pictures in dreams being planless.

Dreams are especially frequent at the time of falling asleep and shortly before awakening. The conscious life of the day does not, of course, cease at once, nor does it begin suddenly. In the condition of half-consciousness which intervenes, the action of external stimuli on the power of perception is not shut out entirely, and dream perceptions arise out of the incompletely perceived sensory impressions. Just as perceptions attach themselves during waking consciousness to any external or internal excitation, so do the pictures of a dream accompany excitations.

It is generally recognized that any interference

with the power of breathing produces a sensation of oppression in sleep, a nightmare. Folk-lore attributes nightmares to an incubus or evil spirit which oppresses people during sleep. The Germanic peoples speak of them as "Alp Druecken," and laid the cause to ghost-like beings, "Alpine mannikins," who seated themselves on the breasts of sleeping persons. A superstition among the Chaldees brought forth tales of demons whose nightly practice it was to wrestle with human beings.

Easy, unobstructed respiratory action, on the other hand, undoubtedly produces in dreams the idea of flying. The feeling of a long and abrupt fall is the result of sudden relaxation of the muscles of the legs. It arises, for instance, when the legs, after being flexed and drawn up, are suddenly extended.

Dreams run their course with wonderful rapidity, long periods of time seeming to be traversed in a moment. That is explained by the fact that dream pictures are almost exclusively visual pictures, which unfold themselves before our eyes like scenic paintings. In a few seconds a dozen pictures may alternate in our dream consciousness,

and this suffices to produce a long dream. Hence it is known that the same external stimulus often causes the dream, as well as the awakening. Dressler cites a very instructive example of this kind, as told by Mouchart.

"I was sick," narrates Mouchart, "and was lying in bed. My mother sat next to me. I dreamt of the Revolution. I was present at the bloody scenes of murder, was summoned before the revolutionary tribunal, and saw Robespierre, Marat, Danton, and all the others who had made a name for themselves in that dreadful time. I argued with them, and finally, after a series of occurrences which I cannot clearly recollect, I was condemned to death. In the presence of an enormous crowd of people I was placed upon the cart and led to the place of execution, mounted the scaffold, and was tied to the board by the executioner. The axe fell and I felt my head being separated from my body. With this I awoke, in the most dreadful fear, and discovered that a bar of the four-post bedstead had become loosened and had struck me in the back of the neck like a guillotine. My mother assured me that this occurred in the moment I awakened."

Evidently, therefore, the sensation of a momen-

tary stimulus was sufficient to produce this long dream which could only have lasted through the few seconds required for the process of awakening.

By dream analysis—that is, by tracing the association of ideas which attach themselves to the single, detached, incongruous elements of the dream—Freud has been able to fix upon a number of important facts. He differentiates:

(1) Dreams which are fraught with meaning and at the same time comprehensible, which, without effort can be assigned to a place in our mental life.

(2) Dreams which are connected among themselves and have a distinct meaning, but appear strange because we do not know where to classify this meaning in our mental life.

(3) Dreams which are unconnected, confused, senseless.

In the first category belong the dreams of children, which fulfil all the wishes that have arisen during the day and gone unsatisfied. Such dreams occur also in adults. Nocturnal thirst, for instance, makes a person dream of drinking. During the night preceding a journey a person not

infrequently dreams of having arrived at the destination.

The dream pictures of the second class probably are composite, made up of different things seen or experienced.

The majority of dreams belong to the third class. In a dream the memory pictures are transformed into an actuality and become mingled together or condensed, the significance of any single idea being displaced. Where such displacement is lacking, the dream is simple and comprehensible, but where everything material is replaced by something unessential, the dream is dark and confusing. If such dream displacements are rectified by means of analysis, we see that every dream is attached to vivid memory pictures or to impressions recently received.

Dreams never concern themselves with those things which do not enter our thoughts during the waking state. It does happen, however, that long-forgotten ideas, perhaps because of some stimulus, crop up in a dream out of the subconscious. This may appropriately be compared to the apparent disappearance of starlight while the sun is in the skies. The stars also shine in the

day, but their light remains unperceived because it is lost in the much stronger light of the sun. Once the sun has set, the innumerable lights of the stars appear, now no longer obscured by the dazzling brilliance from the larger source. Thus also in a dream do darker perceptions and memory pictures arise which during the waking state are submerged by deeper and stronger subjects of interest.

Until most recent times certain philosophers have assumed the basis of dream life to be a special condition of the mind, which they have designated as an exaltation to a higher plane. Schubert, for example, regards the dream as a liberation of the mind from the thraldom of external nature, a disengagement of the mind from the shackles of sensuality. Others have gone still further and have attributed to dreams a significance of prophecy, regarding them as being propitious or inimical demonstrations of higher powers.

Considering the interest which dream life has aroused in all peoples from time immemorial, such aberrations and fantastic conceptions are quite comprehensible if one but remembers that speculative conjecture, untrammelled by any laws of

actuality or by any consideration for facts of experience, has no limitations. Unprejudicial observation, however, has demonstrated, as must have become evident from the preceding discussion, that in sleep as little as in the manifestations of mental activity during the waking state can anything of a mystical or mysterious nature be discerned.

Sleep is nothing more than a diminished state of waking life. The mental processes which run their course during sleep are mostly after-tones of waking life, or special products of consciousness, the evolution of which has been aided by the suppression of external stimuli and purposeful trains of thought. The waking consciousness refers its entire perceptional contents, all its feelings, endeavors, etc., to itself, to its ego, which, so to speak, occupies the central throne and directs the whole. During sleep this conscious, voluntary supervision is absent, and dreams therefore evolve themselves in accordance with their own laws, wherein varied bodily states, like indigestion, oppression of the heart, obstacles to free respiration, exaggerated irritability of the nervous system, etc., do not remain without influence.

Peculiarly enough, dreams generally are forgot-

ten with great rapidity. Therefore it is doubtful whether a perfectly dreamless sleep is possible, one in which consciousness is entirely obliterated and only the automatic movements, heart action, respiratory movements, etc., are carried out. Another characteristic of dream life is the almost complete absence of active movements. Only in very vivid dreams are such movements made. Talking and singing during sleep are more frequent. Of sleep-walkers we have already spoken.

The peculiarities of the child mind, the male mind, and the female mind remain to be considered briefly. After experimental and clinical investigations had succeeded in assigning the functional seat of the perceptions which make up or influence our mental activity to more or less circumscribed portions of the brain, the embryological investigations of Flechsig aided much in the more accurate determination of those centres. These investigations of Flechsig explain how it is that the new-born infant, although it reacts to certain stimuli in a certain manner, executes muscular movements, responds to feelings of displeasure by screaming, etc., nevertheless lacks any power of associating ideas or of consciously joining sensory

impressions and possesses not the least feeling of self—in a word, why the child has no apperceptional capability.

We can observe in the infant how the faculties of conscious seeing and hearing develop, how from the most insignificant beginnings that activity of the mind arises which essentially differentiates the human being from the animal. The new-born child makes no movements, or scarcely any, which can be called voluntary. The only movements which occur are reflex or automatic. Under a bright light the pupil contracts; painful irritations of the skin, even during the first week of life, regularly incite reaction movements. Sucking is a purely reflex action. Only after several weeks from birth does the child perform movements of psychic origin.

From the moment of birth numerous sensations stream through the sense organs and leave their impress on the brain in the form of memory pictures. Through the association tracts, the excitations reach the motor nerves. At first the resulting movements are irregular and purposeless. Only toward the end of the fifth month does the child grasp with any certainty at objects which it

sees, and only from the sixth to the seventh month is the grasping of objects effected by means of the shortest route.

The selection of appropriate movements is acquired essentially by practice, and in quite the same manner as the adult acquires a new movement. Through frequent repetition the movements become more certain and are carried out in their correct sequence and with appropriate force; they become "co-ordinated." The extraordinary rapidity with which the child learns to carry out co-ordinated movements is explicable only by the inherited favorable disposition of its association mechanism.

Through practice co-ordination can be almost endlessly increased. According to Du Bois-Reymond, the value of gymnastics as taught in the German schools rests above all in the training of the co-ordination of movements for the maintenance of equilibrium and for alteration of posture. "The youthful body exercised according to the German manner," he says, "has the unusual advantage that, like the well-trained mathematician who has a method for every problem, it is provided with widely varied movements for all post-

ures of the body." How highly co-ordination may be trained is well shown by the virtuoso on the piano or violin and by prestidigitators.

Of especial interest is the manner in which the child learns to talk. According to Zander, talking is always preceded by comprehension of speech. Most children are able in the second half of the first year to understand simple words, for they turn their heads and stretch out their hands toward objects mentioned to them. The formation of words follows very gradually. The infant not only executes movements with arms and legs, but also makes use of the muscles of the larynx, the tongue, the palate, and the lips, and the resulting tones and noises apparently afford the child much enjoyment. In that way all vowels and consonants ultimately are produced, and later, by imitation, the child forms words. It accomplishes that, however, only after many futile attempts, just as it has to learn to regulate the movements of prehension. Having once learned to designate certain things by certain words, the child at first uses any single word to refer not only to a thing or object, but also to express a wish or a mood which grown-ups would indicate by means of a sentence. The word "chair,"

for instance, is used by the child to intimate, "My chair is broken," "My chair is not here," "I should like to be lifted into my chair," or other things.

About the beginning of the second year words become associatively joined with the percepts of objects. In the third year a normal child can differentiate almost one thousand objects according to their special characteristics, and can express such variations by the words at its command. Conscious perceptional life and the power of apperception, therefore, are already well developed at that age. But the mutilation and the distortion of words which are so characteristic of the child's speech and are due to lack of practice in the use of co-ordinated movements of the lips, the tongue, the palate, and the larynx necessary for the formation of speech, cease only toward the end of the fifth year.

The child is not free; it is a coerced being whose actions are not governed by motives, but are dependent on all possible contingencies until practice and habit force the actions into a certain direction and give the child a certain impress, its character. All education and character formation are based on a firm belief in the dirigibility of the

will by means of the development of the understanding and a refinement of the feelings which, acting as inhibitory factors, oppose and enable the maturing being to resist unbalanced and unstable impulses. Nature is not character, otherwise merit could not be rewarded nor crime punished. Character constitutes what training has made of congenital proclivities, in a good as well as in a bad sense. Upon that our responsibility depends.

Consideration of the individual peculiarities of the male mind and the female mind shows they are the result of the arrangement of nature, which assigns different functions to each sex.

Nature is inexhaustible in the construction of new forms. As a matter of fact there do not exist two living beings entirely alike. With the higher development of the organisms the differentiation becomes more and more evident. Nature requires for the fulfilment of its multitudinous functions all possible varieties, which mutually stimulate and complete one another. Especially does that most important office of nature, propagation of the species, require a differentiation of the organs into male and female.

In the human being, the different functions de-

volving on man and woman are the immediate cause of the marked variations in the build of the body. Those variations are noticeable not only in the primary sexual characteristics, the organs which serve directly for the propagation of the species, but also in the proportions of the body, the skeleton, the muscular system, etc. These bodily differences correspond to very marked peculiarities in the mental action of man and woman, which, as we shall see, are not the result of cultural development, but are the necessary outgrowth of natural laws.

Everybody knows that, in the man, the intellect predominates, and in the woman the emotions; the man thinks chiefly in abstract concepts, the woman essentially in concrete pictures; the man looks on things as they are, the woman as she would have them; the man has the stronger powers of apperception, the woman the more lively imagination and a greater susceptibility to mysticism; the man is more energetic and inconsiderate, the woman more gentle and scrupulous.

Those, of course, are only the general differences between the two sexes. A sharp line of demarcation does not exist in the mental activity of the two. Numerous transition phases, as well

as mixed forms, sometimes even men of a marked female type and women of a pronounced male type, physically or mentally or both, may be noted. It is quite clear that the characteristics of the male or the female mind can be dependent solely on a different organization of the brain.

The differences between the male and the female brain have not yet been investigated in all their details. While certain investigators have found the female brain to weigh less and to have less well-pronounced convolutions than the male brain, others have asserted that the size and the microscopical appearance of the various brain parts are precisely the same in both sexes, and that, therefore, any existing difference must be sought for in the structure of the cells. However that may be, the differences in the organization of the male and the female brain, with the dependent distinctiveness in mental action, constitute facts which cannot be overthrown, and which, moreover, conform thoroughly with the purposes of nature.

To man, in consequence of his more aggressive disposition, falls the struggle for existence; to woman, because of her more passive traits, fall

the making of the home and motherhood. In man are found united all the qualities requisite for the acquisition of the necessities of life and for the protection of the family. The woman possesses, above all, those traits which fit her for the care of children and for the manifold duties of a household.

Nature does nothing by halves. It has given to man not only stronger muscles but also the more penetrative understanding. To woman it not only has assigned the task of bearing children, but it has given an inexhaustible treasure of tenderness, without which the care of the helpless, the feeble, and the sick would be impossible.

That comparison of the mental distinctions of man and woman proves there can be no question of superiority or inferiority of sex. Man and woman are of equal value. The contrasts between them are such that the minus on the one hand is always counterbalanced by a plus on the other; an existing deficiency in woman always is compensated for by a corresponding advantage in man, and vice versa.

Far be it from any one, therefore, to say that woman should be subordinate to man. The ful-

filment of the functions for which nature has chosen and equipped her is quite as important as are those missions which fall to the lot of man. Man and woman mutually supplement each other, just as do the different yet equivaluable complementary colors, red and green. Hence, if woman strives to free herself from oppression to gain that freedom which the unhampered development of her individuality justifies, she is battling in a good cause. As soon, however, as she attempts to imitate man in thought and feeling, her effort is transformed into folly. In doing that she sacrifices her attractive individuality without ever attaining the goal of her endeavors. Existing exceptions to the rule simply corroborate it. It is this species of denature against which Moebius takes up arms in his well-known work on the physiological weak-mindedness of woman.

Moebius by no means looks upon woman as inferior to man. He shows how she surpasses man in qualities of the heart, in patience and perseverance, in the capacity for suffering and deprivation, in powers of love and of hate, while she stands below man in strength of intellect and judgment, in the faculties of keeping apart per-

son and thing, and of reacting to objective reasoning. This "weak-mindedness" Moebius regards as physiological, a normal state preordained by nature. Woman, according to Moebius, becomes a sterling being not by entering public life, not by aspiring to political equality with man, or by turning to scientific vocations, but by fulfilling the functions of motherhood, for which her bodily as well as her mental individualities have been specially cast.

No amount of effort will develop properties which are not already present in the seed. If, however, the development of the female brain is directed forcibly into paths for which woman has not been destined by nature, then those qualities which are to fit her for the state of motherhood must become dwarfed. Moreover, all the acquirements which are not in accord with her innermost nature will always retain a dilettantish character.

Furthermore, Moebius emphasizes the fact that certain deficits in the purely intellectual sphere of woman's life cannot be considered defects, since they are amply equalized by superior capabilities in other directions. It is just those capabilities which enable woman, in case she does not succeed

in attaining her natural destiny through marriage, to enter other vocations without in any way acting contrary to her proper self.

Professor Max von Gruber, the well-known hygienist of the University of Munich, has recently expressed himself similarly on that subject. He says:

"I once was among those who believe that if we only would give woman the opportunity she soon would show what she could accomplish in a mentally productive way. But the older I get the more evident does it become that I was in error. As a matter of fact, I cannot recall having received from a woman, either in scientific or purely intellectual fields, any new point of view, any idea of her own production, which has helped my progress, while hundreds of inspirations have come to me from men. And history does not teach us differently.

"Note the positions of honor which the Germanic and other peoples have opened to women; note the exuberant enthusiasm with which men have greeted every woman who seemed to be coequal in accomplishment. If we compare those instances with the productive accomplishments of

women in science and art, in State government, we must give up every hope that woman, in carrying on man's work, will ever be able to achieve the same results. Efface everything in those fields which women have produced and you will hardly notice the gaps. Only in the reproductive art of the actress, the singer, the musical virtuoso has woman accomplished anything really predominant. And also in the field of romance, where the great George Eliot will always maintain her place beside the greatest of men. . . .

"Individual women may be suffered to seek their fortunes on the same roads as man, but neither the individual nor the nation can be excused if the mass of talented women be enticed into these paths. . . . The worst is to be feared from the obtrusion of women into leading positions. Sober routine would consequently be dilated, short-sighted utilitarianism and dilettantic superficiality would flourish. . . . Man and woman are thoroughly different. The woman is not of lesser worth, but of special worth. Just as woman is physically different from man, even to her flesh and bones and to the coloring matter of her blood, so, too, is she different mentally. Just as she is

constructed physically for motherhood, so does she conform mentally to that, her main province. It cannot be emphasized enough that the assertion that the differences between man and woman are a result of civilization is perfectly nonsensical."

E. Disordered Mental Activity

An exhaustive treatise on mental disorders is not within the scope of this book. There is no occasion for taking up the subject at length because well-defined psychoses, for obvious reasons, are not amenable to psychic treatment and therefore are of little interest here.

We must never lose sight of the fact that neither in a normal nor a pathological sense is there any mental activity which is not dependent on the central nervous system. Just as healthy mental action is a product of the healthy brain, so diseased mental action is an output of the diseased brain. Certain psychiatrists as late as the middle of the last century believed mental disorder was a condition bearing no relation to the bodily organs and, therefore, that it had to be treated with psychic remedies, by controversion of the delusions, etc., but that view has long been recognized as an error.

Doubtless reckless dissipation, alcoholic and sexual excesses, etc., may cause a shattered nervous system, thereby facilitating the outbreak of psychoses. That result is the more likely if the excesses have been preceded or accompanied by syphilitic infection. Therefore, with Heinroth, we might look upon psychic disorder, in a certain sense, as the result of sin, or, with Ideler, designate it as an excrescence of passion. In such cases, however, more recent investigations have proven that not infrequently pathologically altered nervous systems already had existed and were a cause of the irregular mode of life. Besides, it is also possible that mental strain, intense fright, and other psychic irregularities may be followed by mental disorder, but that is because the disturbances bring about organic changes.

The distinct changes in the brain which lead to psychoses are not always recognizable by our present methods of investigation, especially when they consist only in minute changes in the cell structure, transitory anæmia, or hyperæmia, toxic conditions, etc., but when such changes are present they are the cause of the disturbances in the functions of the brain. The alterations in mental activity in well-developed psychoses cannot be corrected so

long as the cause, the actual changes in the brain, continues. But, since such changes cannot be eradicated by psychic treatment, as we said before, the more severe forms of mental disorder need receive little consideration here, and reference need only be made to them where it appears necessary to elucidate those psychic processes which are on the boundary line between health and disease.

In this book we limit ourselves chiefly to those irregular mental activities which, while they cannot be called normal, are amenable to psychic treatment because they are not dependent on organic changes in the brain.

The transition from health to disease is frequently so gradual that it cannot be stated definitely where health ceases and disease begins. Just as we find it impossible to draw a sharp boundary between health and disease in anatomic conditions or the functioning of special organs, so we may encounter many psychic peculiarities, perversities, and eccentricities which, although they attract attention and challenge criticism, cannot be called psychoses. We must not forget that the false ideas which may attain great power over all our mental activities are not necessarily products of a diseased brain.

Frequently they are connected with difficulties in digestion or other bodily disturbances.

In this connection we must mention, above all, those persons who are hypochondriacally inclined. As is well known, they never cease watching themselves with anxious care, and popular medical books lead them to diagnose all possible dangers to their health from the most insignificant changes in their well-being. In many other ways does reading play a great part in the production of false concepts. Numerous eccentricities may be referred back easily to the reading of fantastic tales. Persons of fanciful disposition, of seclusive tendencies and lacking inclination to mix in the actualities of life, frequently construct an entirely false conception of the world for themselves from books. Much of the bias and many of the whims of introspective persons are due solely to their lack of judgment in recognizing the misrepresentations in books.

In many people there exists a certain receptivity for distorted ideas, which becomes increased in proportion to the insufficiency of their education and intelligence in guiding them as to the critical reserve which they should maintain toward the

subject-matter of their readings. In a simple man of the people, for instance, the conviction that the sun moves around the earth might be regarded as a mere error, while in a man of education, one of sufficient insight to recognize that as a false notion, the same conviction would have to be looked on as a disordered idea.

The entire history of civilization confirms the fact that false concepts frequently arise from an absence of insight. Into the late Middle Ages, and even into modern times, the conceptions of the laws of nature, of the essence of physical, chemical, and developmental processes, moved in entirely false paths. The delusions into which alchemy and astrology degenerated to-day appear to us entirely insane. In the same class belong all the medical superstitions, which were due in part to the dogma that diseases were dispensations of mysterious powers and in part to the fact that deductive methods of investigation could not possibly lead to clear appreciation of the processes of nature. Those deductive methods of investigation, which started from general propositions without regard for the facts learned from experience and observation, and drew conclusions concerning

individual processes from *a priori* assumption, entirely intellectual in origin, without any proof of their truth, must be designated as the original source of all those false ideas which prevailed for hundreds and thousands of years in the entire field of culture. When such notions flourished, he was regarded as deluded who, having advanced beyond his contemporaries, was able to recognize the fundamental error and to sweep aside the "system" thought to represent an infallible truth, substituting for that "system" the contrary principle that single facts must first be recognized, and that from a series of such observations only could general doctrines be formulated. As late as the middle of the last century, Julius Robert von Mayer, who was the originator of the mechanical theory of heat, and to whom we are indebted for the law of conservation of energy, was sent to an asylum for examination as to his mental condition. So it might happen even to-day that insanity might be laid to any extraordinary man who could soar to such mental heights that his contemporaries could not understand him.

The atheist or the agnostic may look on certain religious views as delusional; the unlearned man

fails to grasp the concepts of the scholar, and the latter finds himself entirely astray in the circle of ideas of the illiterate. Still all those who, being under the influence of false concepts, fail to understand one another may be perfectly healthy in mind and capable of correct apperception and logical thinking.

False concepts, in themselves, are by no means evidence of insanity. Only if correction is impossible may such ideas be looked upon as symptoms of mental disorder. Such imperviousness to correction always is encountered where organic changes have occurred in the brain, and it militates against or completely excludes orderly association of ideas. That explains why insane delusions cannot be overcome by argument. When a person's powers of apperception react only to false concepts, it is misguided effort to attempt to talk him out of his delusion by argument—that is, by awakening contrary concepts.

As examples of the futility of such effort we need only refer to the causeless outbreak of hilarity or anger in the maniac, the equally causeless states of depression of the melancholic, and the nonsensical ideas of grandeur of the paretic. Not only is the

endeavor to oppose such false concepts by means of argument useless, but it is directly harmful in that it causes the patient to become unnecessarily excited. To-day argument of that nature is employed only for diagnostic purposes.

In those cases, of course, the physician does not know *a priori* whether the false concepts are due to a want of insight or whether they are evidences of a disordered brain. If they are due to a want of insight, they are open to controversion and correction; in the other case they are not. An investigation of the mentality is the only method by which the truth can be ascertained with certainty. The importance of this differentiation and knowledge for the purpose of psychotherapy must have become sufficiently evident from what has been said previously.

A frequent source of psychic disorder in otherwise healthy persons is false sensory perception. That may be due to various causes. In consequence of excessive fatigue, for example, the attention and the power of perception become restricted, so that exact observation is hindered.

How great a rôle fear and other severe emotions play in the falsification of the sensory perceptions

is shown most strikingly in the "seeing of apparitions," which occasionally afflicts people who otherwise are entirely clear-minded. Similarly the sensory perceptions may become clouded by febrile diseases, by anæmia or hyperæmia of the brain, or by narcotic poisons. Since all our ideas are the outgrowth of sensory impressions and memory pictures, deductions and opinions based on false sensory perceptions must necessarily be false. When false concepts fasten themselves in the mind and unswervingly oppose correction, then a disorder of psychic activity is inevitable, especially as the emotional tones and the will impulses which accompany such concepts add in their turn toward forcing the mental life into a false direction.

Stoddart differentiates three forms of disorder of perception: (1) Imperception, (2) hallucination, and (3) illusion.

Imperception consists in the inability to combine with a sensory impression the idea which normally corresponds to it. We have already become acquainted with "psychic blindness." That depends on imperception, and the same is true of the inability to comprehend the meaning of spoken words or to recognize the sensation of taste, smell,

hearing, or touch. Such imperception, of course, may be looked upon as a mental disorder only when similar sensory impressions, in a series of experiences, have failed to produce the proper perception, and when only those concepts and memory pictures are lost which are connected with such impressions. On the other hand, the inability to interpret correctly a sensory impression experienced for the first time cannot be called an imperception, since in that case the thought connections for comparison and differentiation of characteristics are wanting. Hence there can be no suspicion of imperception in children who have not yet learned to differentiate their sensory impressions in an exact manner.

By hallucination is understood the seeing, hearing, smelling, tasting, or feeling of something which does not exist. Hallucinations are not produced by external stimuli, but in most instances are due to memory pictures of especial intensity. This is confirmed by the fact that persons born blind never have hallucinations of sight, and those born deaf never have hallucinations of hearing, whereas in cases of acquired disease or destruction of the peripheral sense organs, sensory deceptions of that

nature are common. Hallucinations have precisely the same distinctness as actual sensory perceptions, and therefore only by careful observation and logical deduction can it be ascertained that they have not been produced by external stimlui.

We must not neglect to mention that hallucinations may be voluntarily produced by artists and other people with very lively powers of imagination. A fitting example already mentioned is that of Beethoven's ability to hear his compositions when in a state of almost total deafness. In this relation, too, we may recall the well-known hallucination of sight which Goethe experienced on the road to Sesenheim, and which he describes in the following words:

"Not with the eyes of the body, but of the mind, I saw myself coming toward myself upon horseback, wearing a dress such as I had never worn. It was fish gray, with gold. As soon as I shook myself out of this dream, the figure was entirely gone."

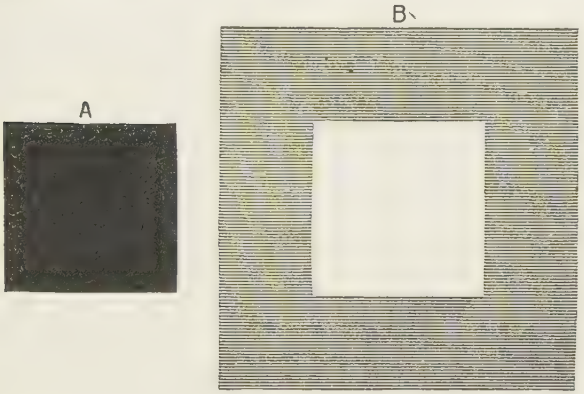
An illusion, finally, is that form of sense deception in which an actual sensory stimulation is consciously perceived but in a falsified manner. If

things are seen, heard, felt in a way different from that in which normal people see, hear, or feel them, we designate such conceptions as illusions. The rustling of the leaves, for instance, may be taken for a voice, a shadow for a human being, etc.

The parallel lines, A, B, C, D, and E, in consequence of the diagonal cross-lines, seem to converge or diverge.

The main difference between a hallucination and an illusion is that in the former an external object which might have produced a sensory impression does not exist, while in the case of an illusion such an object acts correctly on the sensory organs, but is falsely perceived. There exists a large number of illusions which because they are common to all of us may be termed physiologic. Thus, for instance, under certain conditions two lines of

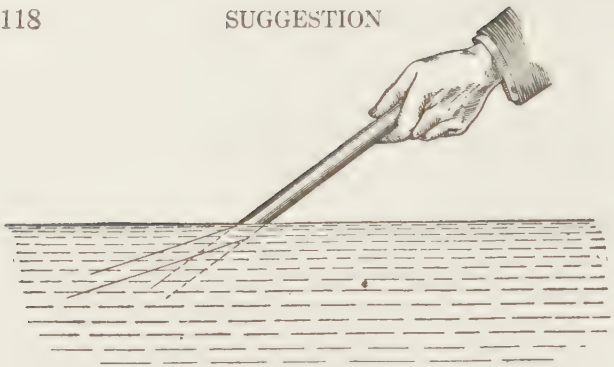
equal length seem unequal, two parallel lines seem to converge or diverge, or, as before mentioned, of two equal-sized squares the one seems to be larger than the other, and a rod immersed in a basin of water appears to be broken. Similarly, a small



Of the two equal squares, A and B, the black upon a white background appears to be smaller than the white upon the shaded background.

sphere, like a pea, rolled between the crossed index and middle fingers, seems to be two spheres.

Practically, a sharp differentiation between hallucinations and illusions is not feasible. So far as the senses of taste, smell, and touch are concerned, we cannot always determine whether an abnormal sensation—a fetid taste, for instance—is a hallucination or whether there exists an illusory misrepre-



A straight rod immersed in water, as a result of the refraction of light caused by the water, appears to be broken.

sentation dependent on an actual perception, such as the pappy taste in a catarrhal condition of the digestive tract.

Aristotle's experiment.

A marble rolled between the crossed index and middle fingers gives the sensation of touching two spheres.

While we are able to assume as a rule that hallucinations and illusions, in so far as they are not dependent on diseases or destruction of the peripheral sensory organs, have their origin in the brain and that, more specifically, disorders of circulation in certain regions of the brain cortex are involved in their production, there can be no doubt that people of good mental health may be sub-

ject to sense deception. In such cases, however, hallucinations are much less frequent than illusions.

Here again we must lay stress on the fact that sensory deceptions in persons of healthy mentality are of little significance inasmuch as they are susceptible of correction, while in the mentally disordered they usually obtain an irresistible influence over not only all the thought processes but also the emotional tones and the impulses of the will. If such sensory deceptions remain uncorrected in the healthy person, if they obtain a firm hold and, together with the dependent conclusions and opinions, acquire permanent dominance of the mind, they may become dangerous to the victim.

The possibility of mental health even in persons of defective sensory perceptions is eloquently proved by the fact that many people congenitally blind or deaf can develop in an entirely normal manner, although they have no idea of color or of tones, and by the fact that Helen Keller, despite her lack of both those senses, which bring about the chief connection with the outer world, went successfully through a well-planned academic course and now occupies herself ably in literature. Such development of defective sensory perception,

of course, can only be understood by the presumption that the defects can be corrected.

How great a power sense deception and false concepts may exert not only on the mental activities but also on the physiological processes of entirely healthy persons has been demonstrated by Bechterew in the following drastic example:

In Copenhagen, in the year 1750, a criminal condemned to death was turned over to the physicians as an object of study. The unfortunate was fastened to a table by means of heavy leather straps and blindfolded. He was then informed that an artery of his neck was to be opened and that his blood would be allowed to drain until not a drop remained. An insignificant prick of the needle was inflicted, a suction-tube was placed next to the man's head, and a stream of water flowing across his neck was allowed to splash into a vessel standing on the floor. The criminal, firmly convinced he was listening to the dripping of his own blood, died as a direct result of the illusion.

An example of a similar kind, reported by Rochas, is this:

A number of students seized a school employee who had displeased them, held a mock trial and

condemned him to death. A block and an axe were brought forth and the prisoner was informed that within three minutes the death sentence would be executed. His neck was bared, his eyes were bandaged, and he was made to kneel. Then, with a wet napkin, a blow was given him on the neck. The students laughingly declared the death sentence fulfilled, but to their great astonishment the man did not move. By great effort he was revived, but he had to be placed in an asylum as incurably insane.

Those, of course, are individual and extreme examples. In a normal brain the imagination alone will not always be able to produce marked disorder; fear and the expectancy of immediate death will not always be able to paralyze vitally important functions. That the majority of criminals condemned to death are yet fully alive at the moment of execution and that their life is extinguished only by the act of execution, proves the expectation of death is not sufficient to cause cessation of the action of the heart or of the movements of respiration.

The two examples given above, however, do show how effective may be the power of imagination

in producing severe disorder in bodily processes as well as in the mental sphere. Later we will demonstrate that this same power of imagination may also be of beneficial influence and that in psychotherapy it has already been developed into an efficacious curative factor.

In the same connection we must mention "psychic infection" and functional nervous diseases, neuroses. By psychic infection we understand the aggregate of all psychic influences which force mental action into false channels. "Functional" nervous diseases are those disorders of sensation and motion in which no organic changes are discoverable and which, therefore, like hysterical paralyses, may be dependent on imagination alone.

That the term "neuroses" or "functional" nervous disease refers to disorders which have as a basis no structural changes and which, therefore, are due to mental causes, must be kept constantly in mind. Through the progressive improvement in anatomical methods of examination, the field of neuroses has steadily become more and more limited. In recent years the refinements of microscopical technique especially have given us a clearer insight into the more delicate structure of the ner-

vous system and have enabled us to recognize as deviations from the normal many tissue formations, the pathological character of which we had not been able to perceive by the older methods. Hence it might be assumed actual neuroses do not exist and that, simply because we are unable to demonstrate the existence of organic changes which perhaps form the basis of those disorders, we necessarily designate them as functional or psychically induced. In another century, possibly, science will have made such progress that the final enigma concerning neuroses will have been solved. For it must be enigmatical that such serious disorder as may be observed in hysteria, neurasthenia, and other troubles should be possible without corresponding change in the gross or more delicate conformation of the organs of the body and of their nervous elements, while everywhere else in pathology the law holds good that disease is a manifestation of life under abnormal conditions.

This question might be answered by the contention that the psychic cure of such disorders in itself furnishes the proof of their psychic origin. Obersteiner, who has given us an excellent dissertation on the most important differences between

functional and organic nervous diseases, very justly states it must be impossible to assume that a severe hysterical paralysis cured by assertion alone could be dependent on anatomical disorder. How could such an anatomical change be set aside by simply arousing a belief in a cure, even if the belief is supported by the "water of Lourdes" or any other similar curative factor? Hence there can now be no question of anatomical change in such cases. Neuroses are and must remain psychic in their origin. Functional nervous disorders are caused essentially by the erroneous idea that specific functions cannot be carried out. It is just this false idea which produces the abnormal condition that limits or entirely prevents the exercise of the function. Therein, therefore, lies the explanation for the apparent contradiction between functional disorders with and without organic changes, for in both cases the expressions of disease are manifestations of life under abnormal conditions.

With Obersteiner, we may summarize as follows the results of previous investigation regarding functional disorders:

According to our present knowledge, many diseases which formerly, in the absence of any ana-

tomical basis of explanation, were classed among the functional disorders, are, as a matter of fact, organically caused; furthermore, the field of neuroses becomes still more restricted through the elimination of those abnormal manifestations of life which have their causes in toxic conditions, disorders of nutrition, hyperæmia, and anæmia. Even if we fail to prove clearly the existence of structural changes in these conditions, the presence of a material basis for their occurrence is sufficient reason in itself for separating them from the category of functional disorders. But even with the exclusion of those cases, there still remain numerous neuroses which present many evidences of disease which frequently are very severe and which have purely psychic causes. If, for instance, a person with a weak nervous system has a fit because he has seen another person in a convulsion, no special proof is required to show that his convulsions were not dependent on organic disorder and that an organic nervous disease never can be incited by pure imitation. The same test will apply to hysterical paralysis, to the sensation of a ball sticking in the throat, and to other manifestations of hysteria. In the same category must also be classed

all neurasthenic and allied states, obsessions, the neuroses without any anatomical lesion of the central nervous system which are caused by accidental injury, and also the functional psychoses, those expressions of diseased mental life which have no foundation in organic changes of the brain. Not only do we know that psychic symptoms are the dominating ones in the conditions we have mentioned, but we also know they are psychically caused and, on the other hand, can be psychically influenced. Obersteiner, therefore, arrives at the conclusion that, while the mere lack of demonstrable changes in the nervous system does not justify classing a form of nervous disease among the functional ones, differentiating between functional disease and functional symptoms would materially conduce to the better understanding of this difficult subject. A picture of disease may be made up of organic and functional symptoms. It may even be asserted that the majority of apparently pure organic nervous diseases also possess a functional factor, the latter then being capable of correction while the organic symptoms are not.

The important and difficult distinction between functional disorder and functional symptoms should

now be clear. The first expression denotes a total or partial inability to carry out a function, without it being possible to detect the existence, in the particular organ, of any changes which might be the cause of this disability.

Functional symptoms, on the other hand, are morbid alterations of function resulting from pathologic anatomic processes. In the one case as well as the other the outward picture of disease may be one and the same. If, for instance, a certain movement of a limb cannot be carried out, this inability may be due to an interruption in the nerve conduction or dependent upon a structural disease of the muscle, and may have been caused by mechanical injury, by infection, toxic processes, etc. On the other hand, none of these causes may obtain, in which case the disorder of function can have been produced only by psychic means. If this is so, then a cure by psychic means, by the arousal of the relative opposing idea, must be possible. At the same time, of course, it is not impossible that the functional symptoms, due to anatomical disorder, which are simultaneously present, but which take their origin in some other organ or part of the body, may be, possibly only

indirectly, ameliorated through this psychic treatment.

It must be looked upon as an assured result of anatomico-physiological brain investigation that the normal course of mental processes is associated, up to a certain degree, with the integrity of the brain cortex. It is entirely impossible, however, to localize the individual activities of mental life in certain regions of the brain cortex. Here we are dealing with conditions which lie beyond the scope of the anatomist and the microscopist and which, therefore, must be conceived as functional. While recognizing all the truth there may be in the basic idea of Gall's teaching concerning the different functions of individual regions of the brain cortex, we must nevertheless, as Obersteiner emphasizes, not lose sight of the fact, so eminently important for the understanding of functional symptoms, that it is essentially the activities of motion and sensation which have been definitely localized in single parts of the cortex; but we have not yet succeeded in grouping the various phases of distinctly mental life in a similar manner upon the surface of the brain, or even in placing them positively in any circumscribed portion of the cortex.

The endeavor to find an ample anatomical basis for functional disorders becomes futile just as soon as we no longer seek functional diseases but look for functional symptoms. All pure functional nervous symptoms or groups of symptoms have common characteristics which justify placing them in the field of psychic symptoms, even when their outward manifestations become material, as they often do. It is only on that basis that we can explain their cure by psychic influence. Moreover, even where the picture of disease is composed of organic and functional (psychically caused) symptoms, the amelioration obtained by suggestive influence can be explained only by the assumption of the existence of a functional factor in most apparently pure organic nervous diseases.

As a matter of fact, there is no single nervous symptom which could not occur in either functional or organic disorder. Paralysis and spasms, anæsthesia and hyperæsthesia, are found as symptoms of the one as well as the other. It may be maintained in a general way that symptoms of disease in fields not under the influence of the mind or of the will are evidences of anatomical lesion of the nervous system, while disorders of the psychic

sphere are more rarely organically caused, or frequently are to be looked upon as functional concomitants of an existing nervous disease. As a classical example in proof of this distinction, we may take the difference which exists between a hysterical hemiplegia and one dependent on hemorrhage into the brain. To the layman the clinical picture of disease is apparently the same. Not so to the physician, for in the one case he is able to efface the symptom by means of psychic treatment, and in the other case he cannot. A similar condition of affairs obtains in those disorders of sensation and of other kinds, already mentioned, which, when viewed cursorily, may represent symptoms either of anatomical lesion or mere functional disorder. In all those cases careful examination and precise knowledge alone can guard against mistakes in diagnosis and treatment.

II. SUGGESTION AS A PSYCHIC FORCE

A. Possibility and Nature of Suggestion

The outer world exists for each of us as each of us conceives it. Each thing in our environment always exerts the same excitation on our brains. But our consciousness does not always react to any single excitation in the same manner. The world about us, broadly speaking, does not change, while the concepts which we form in regard to it may easily change. In that susceptibility of the concepts to change lies the possibility of suggestion, of psychic influence.

Bechterew defines suggestion as a special kind of influence exerted by one individual upon another, with or without the intent of the former, and without the previous knowledge or positive concurrence of the latter. The force of suggestion is based on the arousal of a conviction, unopposed by any contrary idea, that a certain proceeding will take place. In so far it involves not so much a logical conviction founded upon reason as that

credulity which springs from the emotions, which frequently is obtuse to all processes of reasoning, and which sways a person without his being able to account to himself for his notions.

The extremely characteristic expression "psychic infection" has been selected to designate this process.

A physical infection, as is well known, takes place through the interaction of three factors. First, there must be present germs which carry the infection; second, these germs must find an entry into the organism; third, conditions favorable for the development of the germ must exist in the organism.

It is in a similar manner that the processes of psychic infection take their course. We may look upon the carriers of physical infection as being represented, in psychic infection, by all those ideas which are able, whether by force of example, of speech, or of printed word, to incite the imitative impulse in the brains of persons who are receptive —that is, weak-willed.

True, the word "infection" connotes something morbid, an impression which should not necessarily be attached to suggestion.

According to Forel, suggestion represents an inroad upon the association of ideas—"it dissociates that which has been associated and associates that which has not been associated." Those chains of thought which have fixed themselves in our brains as a result of the education or the experience of years, and on which our entire intellectual activity is based, may therefore be disrupted, or new chains may be constructed, by an outside invasion. That is to say, ideas which hitherto have been foreign to one's conceptional life may be aroused by means of suggestion.

But not every suggestive influence attains its purpose; many suggestions founder on the opposition of persons of strong will. In order that a suggested idea may exert its action, not only is it necessary that it be introduced into the brain, but also that it be adopted by the brain. In contradistinction to persuasion, the methods of which usually consist in logical exposition and argumentative proofs, suggestion acts by means of a direct transplantation of mental states, ideas, emotions, and sensations; it is heedless of proof and effective without the aid of logic, swaying solely by means of the force and vehemence of words, by

means of gestures and other mimic movements. While persuasion attains its ends chiefly in strong and healthy minds, the successes of suggestion are most marked where a lower degree of mental development is encountered—in children and people of the lower classes, for instance.

Not all persons, therefore, are equally adapted for the acceptance of suggestions. Suggestibility is dependent on the strength of will, the character, the impressionability; it varies according to age, temperament, sex, education, habit, and culture. The suggested idea, says Engelen, causes other buds to blossom in the brain of an impulsive young woman with lively imaginative powers than in the brain of an old, sober, coolly calculating and keenly critical scientist; other flowers in the brains of people with dominating emotions than in the brains of sceptics.

Over a person of strength of will, one to whom the suggested idea is discordant or even repugnant, the suggestion will prove powerless, while persons of yielding tendencies generally will accept it easily and carry it out.

Furthermore, the immediate mental state of the individual to be influenced must be considered.

Whatever benumbs the powers of judgment and resistance, whether it be fatigue, torpor due to alcoholic or other narcotic depression, fear, or passionate excitement, will enhance the suggestibility. Suggestion produced by taking a person unawares and leaving him no time for reflection acts in the same manner. Suggestibility is also increased under certain pathological conditions—for instance, in hysteria. In fact, suggestion finds all individuals of irresolute character and feeble will-power receptive.

As the result of many experiments, it has been shown that deliberate psychic inoculation is most easily effected during a special state of consciousness, that known as hypnosis. As a matter of fact, the acceptance of the suggested idea during hypnosis may take place with such force that the sensory perceptions and the entire contents of consciousness—even the personality itself—become changed. Through illusory confounding of objects by the hypnotized person, a walking-stick may be transformed suggestively into a dangerous snake; a handkerchief into a violet; a small child into a rabbit. Salt water may be swallowed by him as a rare wine; asafœtida may have for him

the odor of a rose. By the production of hallucinations we can conjure up in such a dissociated personality the picture of a wondrous garden which does not exist and have him gather flowers from it for a bouquet; or we may lead him in a row-boat over a tearing stream and have him live through all the terrors of a shipwreck.

"Every rational conjecture is cut off and consequently the maddest of confabulations are possible," says Engelen.

To the hypnotized person's eyes the moon may be made to fall on one of the spectators and set him aflame; on command the frightened subject will dip air, instead of water, from a hat and laboriously attempt to extinguish the fire. The conscious concepts may be interrupted to such an extent that the subject will forget his name, age, and home, and apparently become a new personality. Krafft-Ebing, in fact, reports a very interesting case of the reconstruction of a previous personality.

To a woman, Ilma Szandor, thirty-three years of age, showing no evidence whatever of hysteria, was suggested the seventh year of her own life, and then she was confronted by her mother.

When asked, "Who is that?" she ejaculated, "My mother, but she is so changed in appearance!" Then she burst into childish tears. This woman, therefore, was dominated by the false belief that she was seven years of age; she had in mind the appearance of her mother in that period of her own life, and she was alarmed by the change which twenty-six years had produced in her mother's looks. Krafft-Ebing says it will never be possible, even in pathological fields, to produce more convincing proof than this of the reconstructed personality.

On the other hand, the existence of a complete cleavage of consciousness in certain individuals may be demonstrated by means of hypnosis. In such cases the subject, when hypnotized, knows nothing of what he has done in the waking state; when in the latter condition, he has no recollection of the hypnotic happenings. Such an instance of cleft or double personality is cited by Bernheim. The subject is a young man, twenty-five years of age, whose complete metamorphosis can be accomplished by a mere glance. As a rule he is earnest, mild, quiet, and timid. Suddenly he becomes hilarious, reckless, intrepid. A worm is shown to

him and he seizes and examines it with interest. A touch on the forehead brings him back to the normal state. He sees the worm, throws it from him, and turns away in disgust. "But you had the worm in your hand just a moment ago," he is told. "Oh, but that is a joke," he replies. "I have such a loathing for it that I would not touch it for all the money in the world." He has forgotten everything which happened when he was under the spell. Another glance suffices to restore that condition, and with no prompting whatever he again seizes the worm.

Besides the sudden revivals of memory impressions which have already been mentioned, we encounter in normal life other occurrences which remind us of states of double consciousness. In this category belong those causeless, recurrent emotional changes of certain people. Those changes may be so marked as to represent a complete temporary transformation of the moral self, so that, according to Bernheim, the most timid person will, at command, pick up a revolver, in order in cold blood to shoot a harmless observer completely strange to him, or in order to commit the most intricate thefts. In the higher degrees of such

alteration of consciousness, of course, a pathological disorder of emotional life is recognizable.

Such remarkable occurrences as those instanced above were attributed at first to mystification of the observers, or even to direct trickery, but they must be explained for the greater part in the same manner as hysterical paralyses or other functional disorders in which the great power of the imagination discloses itself. In the normal state a deception such as occurs in hypnosis will hardly be possible; it will be prevented by the control of the sensory organs combined with active attention and by the proper functioning of the mentality.

If, for instance, we say to a person in the waking state, "Do you see this dog?" the expectation of seeing the dog will be aroused by the credulity natural to every one. The attention becomes concentrated on the fixed memory picture of a dog, and almost at the same instant is directed toward the sensory organs which immediately develop their controlling and corrective activity. The person sees no dog, the brain impression of the dog is not projected outwardly, but is wiped out, and the recognition of the deception ensues. In hypnosis, where the active attention is distracted from

the sensory organs and control, therefore, is lacking, all is different. The picture of the dog actually is projected outwardly; a visual hallucination arises. Such sensory deceptions, accepted during hypnosis, often produce in their turn a very intense reflex action upon the organism, entirely analogous to that which occurs when the ideas are produced by actual sensory perceptions. Thus, if a cold bath be suggested to a hypnotized person, the adoption of the suggestion is demonstrated not only by the typical facial expression which is an outer reflection of the inner shudder, but also by the goose-skin which is produced thereby.

Furthermore, tears may be drawn from the eyes of a hypnotized subject simply by the suggestion of physical or mental pain. We see from this that those disorders which are based on imagination alone, and which, according to Rosenbach, may be designated ideational diseases, are really perceived as actual illness.

This fact is of the greatest importance in treatment. Patients suffering from such "imaginary" diseases will never be cured simply by passing over their complaints with a smile or a shrug of the shoulder, or by attempting to talk them out of

the belief that they are ill. On the contrary, they must be treated as the really sick persons that they are, requiring sympathy and medical attention just like other persons who are ill. We must always keep before us the fact that the personal consciousness, the "ego," controls the adoption of external impressions, modifies the course of ideas, and acts determinatively on our actions. Only thus can it be explained that pains arise or disappear through suggestion alone, that persons or things may be falsely recognized, that objects which do not exist may be assumed to be actually present, that disorders of motion may be produced or removed, that the contents of consciousness may be altered, even to the extent of the effacement of the entire personality, etc.

In this connection it is of interest to consider in greater detail the special relationships between suggestion and hysteria. In his contribution to psychotherapeutics, which he entitles "The Pathological Principles and Fields of Psychotherapy," Prince takes the ground that hysteria is based on a dissociation of personality. When the memory seems for long periods of time to have disappeared, when the feeling predominates that certain move-

ments cannot be executed, when sensation to pain apparently no longer exists in certain parts of the body, or when the sufferer from hysteria feels as though a ball were sticking in his throat, the condition can be accounted for only as the result of dissociation. Certain ideas have become disconnected from the contents of consciousness. They have entered the subconscious, and, therefore, do not respond to the corresponding stimuli.

Prince very justly emphasizes the fact that dissociation, in itself, is a function of the normal brain mechanism, just as is association, and exists for the purpose of facilitating the adaptation of the individual to the constant change in his environment. A pathological impress is created only through that excess of dissociation which renders orderly association impossible and which abolishes the unity of the personality. That any such excess can be a question only of purely functional disorder is proven by the fact that hysterical paralyses, amnesia, anæsthesia, etc., may be produced or removed by means of suggestion in the waking as well as in the hypnotic state.

It must not be overlooked that the potency of a suggestion depends finally on the personality of

the suggester. Above all he must be enveloped, in the eyes of the person to be influenced, by a halo of authority.

There are persons who captivate our admiration, whom we face with timidity, enthusiasm, or fear, who exert over us a mysterious power, and whom we blindly believe without requiring demonstrative proof. Such fascinating personalities sometimes exert an influence over others merely by force of their dramatic talent, without themselves being convinced of the truth of their words, and they are born suggesters. Others who honestly believe in the truth of their own ideas possess no powers of suggestion at all, because they are unable to impress any one with their beliefs, in consequence perhaps of their insignificant appearance or of their timidity.

It has previously been said that suggestion has no power over strong characters. Practically, this fact is almost a negligible quantity, for individuals with unalterable ideas are exceedingly uncommon. No person is completely unreceptive of the suggestive influence which lurks about him, infiltrates his thoughts, emotions, and will, and insinuates itself into his subconsciousness.

We must remember, furthermore, how great is the number of those moral cripples who, as Bechterew says, are kept from profligacy, theft, and other crimes only through fear of legal punishment. To dispose such individuals to the execution of crimes which they would otherwise have avoided, would it not be sufficient to suggest to them exemption from punishment, suggestively to allay their fear of prosecution, and at the same time to present to their imaginations certain advantageous phases of the criminal acts? This question involves the fact that, where criminal acts are committed under the force of suggestion, the mere fact that the suggested idea has been adopted is sufficient proof of the previous existence of a criminal tendency. Legal responsibility for such acts, therefore, is by no means nullified, even if suggestion cleared the way for them. Mitigating circumstances, however, may well be pleaded and recognized—the same mitigation which the law usually accords to one weak enough to allow himself to be tempted by a stronger personality.

The character which a person receives as a life estate gives to his manner of living a certain physiognomy, impresses its seal upon it, and constitutes

the hidden spring which regulates his conduct and action. The stronger this spring the more is the individual governed by it, rather than by external influences, just as a rifle ball is deflected the less easily from its course the greater the force which drives it from the barrel.

Unfortunately the natures which triumph over every temptation and avoid every misstep are extremely rare. There are people who seem to be immune from perversion, but for the majority life is a series of compromises, because they lack the power to adapt the environment to themselves, and must therefore adapt themselves to the environment. In this throng of feeble-willed persons, who unopposingly submit to external influences and, through cowardice, yield to foreign power, who allow themselves to be swayed by other minds, are to be found all varieties of natures—from those good but timid ones which accept every idea forced upon them with assurance to those who, from inconsistency and irritability, are constantly changing their opinions.

This character weakness, whether it be more or less abject, or more or less radical, always has the result of making its possessor impressionable

and receptive of suggestions from the surrounding world. If such persons are placed among favorable surroundings, under the influence of good suggestions, they will become honorable—at any rate, before the law. If they are brought into unfavorable surroundings, where they will be subject to noxious suggestions, they will easily fall into devious paths. We know that criminal tendencies frequently are kept in restraint if the opportunity for criminal acts is wanting, or if the individual is not exposed to any great temptation.

Lombroso tells of a man whom he knew personally as occupying a highly respected position, and who, in a moment of confidence, confessed to the scientist: "If I had not been born rich, I would have stolen."

Weakness of character and of will, as it is encountered particularly in hysterics, produces a high degree of receptivity for suggestive influence, in a good as well as in a bad sense. The surrounding conditions exert their influence in allowing the manner of living of these unstable individuals to be swerved, now in one direction, now in another.

How often, for example, do we hear that young people, through reading criminal novels and other

lurid writings, through seeing obscene pictures, through lascivious stage productions, through improper moving pictures, received the first impetus to a life which finally brought them into conflict with the criminal law! Quite as many facts, on the other hand, may be adduced to show that literature and art, words and example, may also exert an ennobling and strengthening influence upon weak characters.

What has thus far been said shows, at any rate, that suggestions, whether they emanate from a novelist or an actor, from parents or educators, from friends or from people of whom one stands in awe, whether they infiltrate our perceptions by direct contact or by pictures or printed matter, whether they influence us perniciously as a "psychic infection," or whether they exert their beneficial effect in the form of a psychic curative remedy, do play an extraordinarily large rôle in the life of every person.

B. Scope of Suggestion

We have seen how great a power ideas, with their accompanying tones of emotion, may wield not only over our thoughts and actions, but also

over the functions of our bodily organs. The totality of our mental activity depends on nothing but ideas. Even when an idea is not the result of an actual stimulus, when it is dependent on simple imagination or is produced through sense deception, it gives rise to the sensations which specifically go with it when there is an actual stimulus. A person who believes he has been pricked by a pin feels the sting and makes a movement of protection. One who believes his food to have been prepared in a disgusting way experiences repugnance and may vomit solely in consequence of the idea. In a series of tests of the electrical excitability of various persons, Dubois used a non-active unconnected battery, and yet he found that most of his subjects, thoroughly believing the electric current had been applied, were able to give accurate descriptions of sensations which might have been expected only from an active battery and which ranged from a slight tingling or burning up to unbearable pain.

Man feels what he conceives as soon as he is entirely convinced of the correctness of his conception. Simple imagination, the mere expectation that a certain thing will happen, suffices in most

instances to alter bodily functions, to produce or allay sensations of pain, or to bring about other conditions conforming to those which would result from a real experience of the thing imagined.

From that it will be appreciated that the possibilities of suggestive influences are exceedingly numerous. Especially for pedagogy do those possibilities furnish a responsive field of action, and therefore they should be of great interest to parents, teachers, and educators. We hope at a future time to take up a consideration of suggestion as a factor in instruction.

Suggestive possibilities, however, have distinct limitations, set by the laws of nature. We can produce false concepts and sensory deceptions, with their accompanying sensations, or remove such concepts by awakening contrary conceptions, but we cannot bring about any organic change by means of suggestion. Kant, in the work previously alluded to, speaks advisedly of "disordered feelings" which can be overcome by the mere exercise of the will, rather than of disease. An example which proves the rule is that of a celebrated university professor who, although suffering from an incurable and extraordinarily painful disease, was able to lecture

regularly up to within a short period before his death. The distraction which this occupation in his special field afforded to him and the intense interest he took in his youthful auditors enabled him to forget his pain as soon as he was on duty. But the disease itself followed its inevitable course.

In the process of recovery from disease the emotional state of the patient plays a not unimportant rôle. Depressed feelings and hopelessness militate against the recuperative process, buoyant fortitude and a cheerful mood foster it. To that extent the course of disease certainly may be influenced by the use of suggestion.

Bodily functions may be affected by means of suggestion, though organic changes cannot be brought about. A patient may be made to believe, on receiving a subcutaneous injection of water, that there has been an injection of morphine, and the conviction that the opiate will have its natural effect may lead him soon to go to sleep. But it is not possible for imagination to reverse the natural effect when a real drug is used. In a constipated person the ailment cannot be relieved by the administration of tincture of opium, with the accompanying suggestion that an aperient is being given,

nor can diarrhœa be checked by giving jalap under the name of a constipating dose. Similar examples could be given without stint. Pilocarpine might be administered to a tuberculous patient troubled with night sweats, atropine to a sufferer from chills, and so forth, and each administration accompanied by a suggestion contrary to the physiological and therapeutical attributes of the specific remedy, but the expectation that our entire drug treatment might be turned topsy turvy by such means would in all cases meet with disappointment. Notwithstanding all contrary suggestions, these medicaments would act in accordance with the laws of chemical affinity.

The fact that no incongruous action of medicines nor organic change of the tissues can be produced by imagination alone is of fundamental significance as regards suggestion in general, and as regards its therapeutic application in particular. One lesson that it gives is that the action of drugs may be enhanced by means of suggestion, though it cannot be reversed.

By arousing in the patient the positive expectation that the action peculiar to the remedy will set in, suggestion actually does promote indirectly the cure of bodily diseases and the removal of or-

ganic disorder. The connection of this psychic curative factor with physical processes of disease may be recognized, therefore, if we keep in mind that the regulation of bodily functions cannot but influence the retrogression of organic changes, and that the removal of functional disorders, particularly, constitutes one of the chief fields for treatment by suggestion; and if at the same time we recall not only that bodily states act on the state of mind sometimes exhilaratingly, sometimes depressively, but also that, conversely, the mental state influences the physical processes.

We must never lose sight of the fact, however, that psychic influence alone is not capable of producing anatomical changes. No kind of suggestion can produce a sarcoma or other new formation, nor can it cause the removal of an existing one. Tumors do disappear without surgical intervention, though very rarely, and certain tumors clinically diagnosed to be cancerous have disappeared with or without the use of drugs. Just what led to the nutritional change which caused the atrophy of such tumors cannot be stated, but we have no reason to suppose that suggestion alone was a material factor in their disappearance.

Krafft-Ebing and Forel have instituted detailed

experiments to ascertain whether there is a possibility of causing organic change by suggestion. They are said to have succeeded, by the power of suggestion alone, in producing blisters on the skin, as well as burns and hemorrhages. Those effects were produced merely by laying a piece of paper on the skin. The blister appeared when the subject was informed that a mustard plaster was applied, the burns were produced by attributing to the paper the qualities of glowing metal, and the hemorrhages by attributing to it the qualities of the cupping-glass. Even assuming the deception in each case was a complete success and that the effect logically to be expected ensued, and ignoring the fact that Krafft-Ebing and Forel themselves admit these experiments rarely were successful and that, when they were successful, had to be most sceptically received, the result does not by any means overthrow the rule that organic changes cannot be produced by suggestion alone. In our opinion it is an ample explanation in these instances to say that it was a hyperæmia due to suggestion, and, therefore, a functional change in the circulation of the blood, which caused the hemorrhages and the alterations in the skin.

Incidentally it may be said that the so-called maternal impressions of pregnant women, the supposed causation of malformation of new-born children by alarming visual impressions received by the mothers during pregnancy, have been proven fictions. All in all, it is not going too far to assert that, according to the present status of science, the direct production of organic changes lies entirely beyond the possible effects of suggestion.

In considering the possibilities of suggestion, we must not overlook the question whether suggestion is capable of causing a person to perform any selected act. As is well known, the Nancy school, supported chiefly by Liébault and Bernheim, holds that the possibilities of suggestion are unlimited, and that, especially by means of the hypnotic state, every individual may be rendered completely devoid of any personal will. Against that contention we would mention the fact that, notwithstanding the astonishing effects of suggestion, the hypnotized subject is not a complete automaton, not a mechanical toy, in the hands of the hypnotizer.

No matter how powerful a suggestion may be, it is by no means received to the extent of extinguishing completely the subject's moral individuality, and

it cannot force a person to any act which he never would commit when completely conscious. A person thoroughly opposed to a certain idea cannot be compelled to act in accordance with that idea, even when it is forced on him by means of suggestion. The suggestion must be in accord with the innermost nature of the individual. For that reason not all suggestions are obeyed, but only those which the hypnotized person might in certain circumstances carry out on his own initiative at any moment.

According to Liébault, the hypnotized person follows the suggestion blindly—"he carries out what he has been enjoined to do with the fatality of a falling stone." It is quite true that certain facts seem to prove the truth of these words. Gilles de la Tourette, in his work on suggestion from the stand-point of medical jurisprudence, cites various interesting experiments in which the hypnotizer succeeded in effacing completely the independence of the individual, and in causing him to cast aside fundamental moral principles. At the command of the hypnotist, a girl known as righteous shoots at her mother; a young man of conduct above suspicion administers poison to his aunt; a lady kills

a physician who treated her unsuccessfully; another poisons a person entirely strange to her.

Even admitting that such cases, in which the hypnotized person accepts suggestions thoroughly contrary to his moral feelings, have occurred, we must agree with de la Tourette and the physicians of the Salpétrière that such instances not only are exceedingly infrequent, but that in each of them it is only with the greatest difficulty that the will of the hypnotized person can be obliterated. He yields only after opposition, and frequently there ensues a hysterical attack which proves how difficult it was for him to obey. That attack is regarded by de la Tourette as a retarded revolt of the organism against a deed which filled it with horror.

As is shown by his opposition to a suggestion disagreeable to him, the hypnotized person always remains an individual with a will of his own. His surrender under pressure proves nothing more than the existence of individual frailty; by no means does it prove that suggestion is omnipotent. The normal "I" always exists alongside the abnormal "I" created by the hypnotist. This abnormal "I" can be led to do something deeply repugnant to

the normal "I," but only under conditions which might be compared to those which are present in inebriety.

Suggestion, however, may weaken the will to such an extent that it can no longer be determined whether the will still exists. During hypnosis, things take place under the influence of the hypnotist's will which, for other reasons, take place in dreams, sleep-walking, or intoxication. The person in any of the three latter states does things which he would not do when in a normal condition. But his "I," much as it may be pathologically altered, nevertheless is constantly present; it is modified, but not effaced. It is easier to induce any one to commit acts ordinarily repugnant to him when he is in a state of hypnosis than when he is in any other condition, but even in hypnosis he will always manifest his proper nature, just as in sleep or in inebriety. It may be said, therefore, that under the influence of suggestion a person will show against which acts his innermost nature revolts. Consequently any crime willingly committed while in a state of hypnosis will always be caused partly, perhaps only to a minimal extent, by the organic disposition of the individual, for if this organic

disposition were not present, the individual would have withstood the suggestion.

Just as alcohol, in proportion to the duration and the strength of its influence, will paralyze or diminish the moral control which we possess as a result of inheritance or training, and which prevents us from following criminal impulses, so it may be said in relation to suggestion that, during hypnosis, the transition from an idea to an act will be the more prompt the fewer the obstacles and the inhibitory feelings which must be overcome to permit the suggested idea to rule alone in the narcotized consciousness. Let us not forget, however, that even in the deepest hypnosis a person cannot be driven to the commission of deeds which he would not have committed entirely independently of suggestion as soon as he had lost his self-control.

The alleged power of Hindoo fakirs to place themselves in a condition of apparent death has been mentioned by authors of note as a striking example of the scope of suggestion.

According to N. C. Paul, cited by Bunge, "fakir" is an Arabic word which signifies "mendicant." The term has been applied to the Hindoo mendicants and jugglers—more particularly to the

juggler adherents of the Yoga philosophy, those who have adopted as their aim in life the Yoga, that mystic fusion with the deity and the complete abnegation of sensuality by dominance of the mind over the body. Fakirs, therefore, are more correctly called Yogis. Reliable evidences of their accomplishments are very sparse, notwithstanding the statements of spiritists and theosophists that demonstrations of the Yoga are frequent in India. It is said some of the Yogis, by means of prolonged castigation, put themselves into a sleep which bears the impress of asphyxiation, with apparent cessation of heart and respiratory action. The Yogi immures himself in a narrow subterranean cell in which the temperature is unchanging, takes very little nourishment, cuts through the band under the tongue, then draws out the tongue repeatedly until it becomes elongated so he is able to double it backward upon itself and thus cover the posterior openings of the nasal cavity and keep the air in his lungs from escaping. Sleep is then effected through auto-suggestion and the exclusion of all distracting sensory impressions, combined with fixation of the Yogi's own nose. The Yogi then is laid in a coffin, occasionally even buried, and,

after a day or even a few weeks, disinterred and revived.

The documents of Braid, who calls this process of apparent death "human hibernation," are of importance. His interest in these occurrences was aroused by communications concerning them which were made to him by Dr. John Cheyne, professor in Dublin, a recognized medical authority. Special interest attaches to Braid's report of such apparent death in a European. Colonel Townsend, an Englishman, possessed the power of voluntarily causing a cessation of his heart and respiratory action and of remaining in a state of apparent death for a period of half an hour. Dr. Cheyne and Dr. Baynard, who were witnesses of such an act, state that they were unable to perceive any pulse or heart beat nor any respiratory movement, and that a clean mirror held to Townsend's mouth did not become dimmed. The physicians feared Townsend was dead, but after half an hour the heart-beat slowly returned, respiration set in, and the body began to move.

Braid says that, in the face of such testimony, he was no longer able to disregard the statements concerning such occurrences among the fakirs, or

Yogis, and he made further written inquiries of reliable people in India. These reports of cases collected by Braid include some in which actual burial, with or without a coffin, had taken place. Such burials of apparently dead Yogis certainly must be very infrequent. Paul, who, by the way, according to Schmidt, was an anglicized native of India, by the name of Navina Candra Pala, and whose reports for this reason are not unbiassed, mentions in his treatise only three cases of such burial. He says the bodies were placed in a vault, which then was covered by two heavy flat stones five to six feet long, several inches thick, and wide enough to occlude the opening completely, and, Paul believes, some earth was thrown over the stones.

Bunge, in his "Physiology," cites the report by a Swiss merchant, Charles Breuer, who had lived in India for a long time, of a religious celebration which took place in 1895 in the presidency of Madras. A fakir was placed in a trench, his body was covered with a cloth and then by earth. This occurred at eleven o'clock in the forenoon; at five o'clock in the afternoon the body was disinterred and resuscitated. During the entire time a large number of spectators was present, and Breuer

himself witnessed both the interment and the disinterment.

Of course, it is very difficult to say whether much contained in these reports is not due to errors of observation. According to Schmidt, the four cases of Braid occurred between the years 1828 and 1857, and, in all probability, represent various "deaths" of one and the same person, the Yogi Haradas, who came from the neighborhood of Karnul. Garbe says that the reports by Hindoo natives of apparent deaths of the Yogis "have but little value for those who recognize the untrustworthiness of the modern Hindoos."

Even if all these reports are exaggerated, even if the trustworthy ones are only those which tell of the Yogi's sleep in the open air and of cases in which heart action and respiration showed no marked variation from normal conditions, still there must be involved in them a question of prolonged hypnosis, of a cataleptic state. Hence they must be of interest in showing the extent to which bodily functions may be influenced by suggestion, by the concentration of the will and the imagination upon a certain idea.

C. Forms of Suggestion

In a more special discussion of the various forms of suggestion, it is advisable to take up first the difference between waking suggestion and hypnotic suggestion.

There can be no doubt whatever that premeditated psychic inoculation is most easily effected in a special condition of consciousness which is called hypnosis. We are usually able to avoid the use of this method, however, since in a large number of persons a further increase of the naturally great receptivity and impressionability is superfluous. Furthermore it is frequently difficult, and, for the unpractised hypnotist, occasionally impossible, to produce the hypnosis necessary for an increase of suggestibility. As a rule, therefore, we shall have to confine ourselves to suggestions made during the waking state. Those, in the majority of cases, not only are adequate, but also enable us to avoid the various dangers associated with hypnosis, especially as practised by the unskilled.

He who, through lack of experience or because of ignorance of the technique, is in doubt regarding his ability to implant suggestions by means of

hypnosis, will be able, notwithstanding, to attain results by the persistent use of suggestive influence during the waking state. Still it will be useful to know the main characteristics of the hypnotic state.

Hypnosis, as the word indicates, is a sleep-like state produced by artificial means. The condition is brought about by suggesting the idea of sleep and by the acceptance of the suggestion on the part of the person to be influenced. The question immediately arises, Is the condition produced by the suggestion of sleep an actual sleep? As to that, opinions differ widely. Certain authors, including Wundt and Krafft-Ebing, deny there is any similarity between the hypnotic state and sleep; others consider the two states identical; still others adopt a middle course, designating the lighter grades of hypnosis as states not akin to sleep, while deep hypnosis is regarded by them as actual sleep.

The difficulty of answering this question lies in our ignorance of the physiological conditions which exist during sleep. In sleep, the attention—that is, the power of concentrating the psychic energy on certain concepts—probably is divided equably among all the sensory organs. In consequence of this equable distribution, it is impossible, accord-

ing to Hirsch, for any individual function of the brain to become efficient to the same degree as in the waking state.

Indeed, it may be said normal sleep occurs through not concentrating the attention, through not thinking of anything definite, through not directing the sensory organs toward a definite point —in short, through closing them to external stimuli. The more such equalization occurs, the stronger does fatigue become, and when it reaches its height, sleep occurs. Sleep does not occur in consequence of the attention being concentrated upon the idea of sleep, for, as is well known, many people fall asleep entirely against their wills, even when they voluntarily distract their attention from sleep, and often under very inappropriate conditions.

Accordingly, also, the process of awakening, after brain and body have become rested, probably takes place through the gradual reconcentration of the attention, which, during sleep, has been distributed equably in individual perceptional centres. When such reconcentration is taking place, any sensory stimulus, a stream of light, a noise, etc., which is not perceived during sleep, may be

ample to make an impression on consciousness and cause the awakening.

The main distinction between sleep and hypnosis is furnished by the state of the attention. Whereas in sleep the attention is equably distributed, in hypnosis we find it concentrated on the idea of sleep. The hypnotized person merely believes he is asleep, he has the illusion of sleep without really being asleep. That is corroborated by the fact that people in natural sleep usually are not amenable to suggestion. Since the attention, in hypnosis, is directed toward a certain idea, consciousness is not altered in the same manner as in sleep. The hypnotist can place himself in communication, en rapport, with the object of the experiment, and can receive answers to his questions. It is said to be possible by this means even to inveigle the hypnotized person into revealing his innermost secret—that of a crime, for instance. Here, of course, we cannot enter on a discussion of the question whether such a procedure is justifiable, or whether, assuming all inhibition to be removed during hypnosis, divulgence of such secrets may be attained with any degree of certainty.

It is a fact, however, that we cannot place our-

selves en rapport with a sleeping person, and for that reason alone hypnosis is not identical with actual sleep. On the other hand, it is possible to transform sleep into hypnosis, or hypnosis into sleep. In the former case a rapport may be subsequently attained, in the latter case the rapport at once ceases.

Various additional points might be adduced to indicate the difference between sleep and hypnosis —such, for instance, as the fact that the closure of the lids which characterizes natural sleep is not necessarily present in hypnosis; the regular experience that going to sleep takes much longer than being placed in a state of hypnosis, which usually is attained in a few seconds; and the absence in hypnosis of the sensation of fatigue, which is concomitant with going to sleep. In the main we must agree with Hirsch that the chief difference between the two states rests in the fact that in natural sleep the attention is incapable of concentration and is therefore ineffective.

Still, since hypnosis is a sleep-like state, we are justified in contrasting it with the waking state. We must reiterate that during hypnosis, since the attention is directed to the concept of sleep, the

will power and judgment are markedly weakened, if not entirely suspended, and for that reason alone suggestibility is increased. Suggestions, therefore, may become fastened and realized more easily than in the waking state.

Nevertheless, we must insist that even without hypnosis, and without the usual accessories associated with it, such as the fixation of lustrous objects, stroking and other manipulations employed for the purpose of increasing the subject's credulousness, the simple verbal method of suggestion is entirely and promptly efficacious in the majority of instances. If we succeed in obtaining the acceptance of a suggestion, the emotions, the sensory perceptions, the impulses of the will, etc., which correspond to the suggested idea, will become operative, in accordance with the law of ideodynamics, or of the power of thought, first formulated by Bernheim.

In connection with the discussion on hypnosis, we must briefly mention the manifestations known as "subconscious" and their corollary, alternating personality.

The studies and investigations devoted to the hypnotic state, with the special attention given to

the memory of hypnotized subjects, soon showed that the memory remained unaltered during the lighter degrees of hypnosis. Throughout such superficial hypnosis the subject retains his recollection for all occurrences of waking life, and, after the hypnotic state has passed away, for all which has taken place during that state. Even the slightest lapse of memory cannot be discovered. But in the deeper grades of hypnosis the conditions are entirely different. A characteristic of those states is the post-hypnotic amnesia, loss of memory of what the person has experienced during the hypnosis. This loss of memory, which may be termed the direct mark of differentiation between superficial and deep hypnosis, is, however, by no means complete. The memory pictures which apparently have faded can be revived by means of a fresh hypnosis.

In the new hypnosis the memory impressions received in the preceding hypnosis will again be present. Even in the waking state an experience of the hypnotic state which apparently has been obliterated can occasionally be recalled. This takes place when conditions similar to those which have brought about the first impression arouse

the dormant recollections by means of association of thought. In this manner dreams and experiences of the waking state which have apparently been forgotten entirely, may reappear suddenly, distinctly, and clearly. If, on the other hand, many sensory perceptions disappear from memory without leaving a trace of their former presence, it is because they have left no impress on the brain, for, as we have already stated, such impress takes place only when the sensory perception is accompanied by the requisite attention. Whenever such attention is lacking, when the mind is busied with other matters or is incapable of concentration, the sensory perceptions will pass by without leaving a record; then recollections of their happening cannot be revived by a recurrence of like or similar conditions.

Memory is dependent on actual brain impressions and on the existence of association fibres by which these impressions are interconnected. It is immaterial whether these impressions have been produced in the waking state, in a dream, or in hypnosis. If the same or similar conditions are not reproduced again to stimulate the association fibres, the impressions will sink into oblivion, to

be recalled at once, however, when such conditions are reproduced again.

In hypnosis such reproduction is effected artificially when, through association of ideas, the imparting of the experience of a former hypnosis forms a bridge, so to speak, between hypnosis and hypnosis, or occasionally between the hypnotic and the waking state. But where have these memory images been during the time they have been unable to force their way into consciousness? They could not have been actually effaced, since an association of ideas or a renewed hypnosis has again brought them to light. The answer is that they were latent in the brain, in a sphere of consciousness which has been designated the "subconscious or subliminal mind," in contradistinction to the supra-conscious or supra-liminal mind, which takes in the perceptional contents always present in consciousness. On this basis Dessoir has constructed his theory of dual personality. The concepts present during hypnosis would fall, therefore, within the domain of the subconscious. Dessoir even goes so far as to look upon all hypnosis as a state in which the subconscious self occupies a dominant position, displacing the supra-conscious self.

To me it does not seem that the term "subconsciousness" has been happily chosen. The word may give the impression that there is a contradiction between subconsciousness and supra-consciousness. Yet the one does not exclude the other, as, for example, the word "day" excludes the idea of night, light excludes dark, right excludes left. We must always remember that subconsciousness does not stand for any new thoughts, but is essentially made up of memory images. For this reason I agree entirely with Prince, who prefers the term "co-consciousness." This quite correctly expresses the idea that, beside the main consciousness there exist perceptional contents which are not always present and apparently have left behind no brain impressions, but which, through purposeful or accidental stimulation of the association fibres, may be recalled to memory at any time.

This explains the facts mentioned by certain observers, which at first blush seem rather mystical. I would recall to mind the case mentioned by Obersteiner of a servant girl who, while in hypnosis, cited Hebrew phrases, but during the waking state had no knowledge of that language nor any recollection of ever having known it. It was shown, however, that this knowledge had come to her in

an entirely natural way. Years before she had been in the employ of a pastor whose custom it had been to read aloud the Hebrew biblical texts, and these she evidently had learned without in any way understanding them. It certainly is not unusual for persons in hypnosis to live in a world of thought entirely foreign to that of their waking state. Out of that condition of affairs grows the idea of a double self or dual personality. It is this which has helped to surround the hypnotic state with an atmosphere of mysticism, and which has caused the belief that some demonic or supernatural force controls hysterics, who, on the one hand, are easily hypnotizable, and, on the other, are so changeable emotionally that they often present the picture of dual personality.

It is now in order to take a cursory view of the condition which the spiritists designate as "trance." In this state, which is identical with hypnosis or somnambulism, the spiritistic mediums, figuratively speaking, are said to be transported from earth and endowed with the power of second sight, clairvoyance. Then, it is asserted, they manifest knowledge which goes far beyond what should be expected of them in view of their educational

opportunities. The spiritists explain this by the assumption that the mediums, when in a state of trance, are the interpreters of people who are dead, and, therefore, that it is not their proper self which gives expression in the trance to so-called supernatural knowledge, but another self—namely, the spirit of the departed. As a matter of fact, in these cases it is a question essentially of the revival of memory images which have passed out of consciousness and which, perhaps for many years, have lain latent in the subconsciousness, or co-consciousness. The use of foreign languages in the trance is also to be explained in this way. Thus Laura Edmonds, daughter of Justice J. W. Edmonds, of New York, was able to speak nearly all languages in which conversation was sought, although, according to her father's statement, in a waking state she knew only her mother tongue, English, and a little school-girl French. When in a trance she also sang in foreign languages.

Such powers have been manifested by other mediums, too. Quite as singular is the answering of scientific questions in a state of trance by a medium who, when awake, is unable to impart any information whatsoever on such subjects.

Spirit-writing, or the transmission of a spirit's "thoughts" in writing by the hand of a medium, is usually effected by means of the psychograph. Varied constructions of this apparatus are seen. A common one consists of a light, freely movable bar or pointer on a board on which letters of the alphabet, the figures 0 to 9, and many of the commonest words are printed in a circle. The medium places his hands on this board, and then the pointer moves to and fro, from letter to letter, thus forming words and sentences. The planchette is a variety of psychograph.

Automatic writing, spirit-writing without the use of apparatus, is effected as follows: A pencil is held by the medium in a writing position over the paper; when the attempt is successful, the hand moves as though under foreign influence; often many futile attempts are first made, the writing then representing nothing but a confusion of lines and dots, from which ultimately a legible writing is developed. It also is asserted "spirits" send direct written communications, in which the pencil is moved by the "spirits" themselves, and the writing is done on covered or concealed sheets of paper. The statement of the spiritists that this

form of communication is the highest manifestation of spirit life, when considered together with the concealment necessary for its effectiveness, suffices to characterize the entire procedure as a piece of dextrous sleight of hand, which can impress none but the credulous mind.

As a matter of curiosity, let us here relate an example of direct writing which has been designated by the spiritists as a "great success," and which shows that even the most learned men may become victims of deception when they abandon the field of fact for that of speculation. This example is taken from the report of a séance, at which Professor du Prel and Baron von Hellenbach allowed themselves to be mystified by the well-known medium Eglinton. As du Prel tells the story, Eglinton, on being left to himself, soon went into a condition in which, evidently, he no longer acted consciously, but was governed by instinctive and involuntary impulses. He next sat at a table, arising now and then, walking about, and speaking in an altered tone of voice. He asked von Hellenbach for some clean paper, and, taking a single sheet from a package of rather stiff sheets of notepaper of the size of a postal card, placed it on the

table. Then, going to a bookcase, he took out a book which happened to be Zoellner's "Transcendental Physics," and which also was placed on the table. Tearing a corner from the sheet of notepaper, Eglinton placed the torn bit in du Prel's hand, and the empty sheet, together with the point of a pencil, in the opened book, which then was immediately closed. Eglinton kneeled between du Prel and Hellenbach, and all three joined hands on the closed book. Hellenbach asked a question relating to his studies which required a long answer. After a few seconds, du Prel, having the feeling in one of his hands that writing was going on within the book, placed his ear on the volume and distinctly heard the muffled sound corresponding to rapid writing on material of such a nature. Three quick knocks from within the book announced that the unknown "spirit" had completed its work. When the book was opened, the previously clean sheet was found covered by thirty closely written lines. From a corner of the sheet a piece was missing, and the torn edge fitted exactly with that of the piece in the possession of du Prel. A repetition of the experiment furnished the opportunity for a completion of the answer.

Du Prel says particularly that the writing bore no resemblance to that of Eglinton, and that, by the light of three gas-jets, every movement of Eglinton could be carefully observed. He gives it as his opinion that no deception could have taken place.

Any one who has attended spiritualistic séances, and who has been a witness of the manner in which even the most intricate exhibitions of so-called mediums have been surpassed by expert prestidigitators, must be able to form his own conclusion as to the value of such experiments. So far as automatic writing is concerned, we would only recall what has been said concerning the involuntary bodily movements always associated with psychic processes. That these movements may give to the pencil a certain direction is evident. At times the meaning of the written communication is without sense or ambiguous; at times a clear meaning is given. In the latter case, careful study always will show that the apparently foreign thought is not a new revelation, but represents that part of the general conceptive contents which has lain dormant in subconsciousness, or, rather, co-consciousness. That such processes of thought may be elicited during trance or hypnosis without

having been suggested is explained by the augmented powers of recollection which accompany those states, and which condition is known as hyperamnesia.

We have already mentioned that, during hypnosis, there may be observed in certain persons a complete dissociation of consciousness which bears the impress of dual personality. The case of the woman Ilma Szandor, to whom had been suggested the seventh year of her life and loss of memory for the entire period which had elapsed since that time, so that she believed herself to be a child and looked upon her surroundings from a childish view-point, as well as the case of the young man who, during hypnosis, was transformed from a mild and timid into a valorous and intrepid person, depends solely on the power of suggestion and the alteration in the conceptional contents produced thereby. An entirely different interpretation must be given for those cases of dual personality in which, through accident or disease, certain association tracts have been destroyed or barred out, so that the memory images for certain periods of life cannot be reawakened by any known means.

Finally, let us take up briefly the differences

between auto-suggestion and foreign suggestion. There are suggestions which arise apparently spontaneously, without any influence of other people, which depend on an idea starting in the individual himself, and are therefore designated as auto-suggestions. The formation of an auto-suggestion may be caused by an association of ideas. Take the case of a person who has undergone a painful operation at the hands of a physician. Later, if he is obliged again to consult the physician, the auto-suggestion will arise that he must again submit to a painful operation.

Moreover, numerous pathological manifestations depend on auto-suggestion caused by association. The nervous vomiting which affects so many people may well be caused by the fortuitous occurrence of a single attack of vomiting after a heavy meal, followed by the auto-suggestion that this vomiting will recur after every subsequent meal. Numerous idiosyncrasies against certain foods or odors are perhaps to be explained in the same manner. Furthermore, Moll calls attention to the fact that the imperative concepts, obsessions, such, for instance, as the fear of open spaces (agoraphobia), owe their origin to auto-suggestion. The agora-

phobic patient becomes dominated by the idea that he cannot traverse an open space, his own will is too weak to withstand this auto-suggestion, and every attempt to traverse an open space brings forth the typical feeling of fear. Similarly, numerous hysterical paralyses are dependent on auto-suggestion. We shall become acquainted later with many forms of disease whose ultimate causation is the result of ideas produced through auto-suggestion.

That auto-suggestions may arise in consequence of sense deceptions is also undeniable. As opposed to auto-suggestions which arise against one's will stand those which are produced consciously by one's will. Hirsch cites a drastic example, mentioned by his former teacher, the physiologist Preyer, in his lectures as proof of the possibility of an intentional auto-suggestion. Preyer recounted that he never allowed his study to be heated, but utilized his will power—that is, his capability of auto-suggestion—to eliminate the sensation of cold. By means of the auto-suggested sensation of warmth, it became possible for him to work in comfort in a cold room and to bathe in ice-cold water.

In the same category belongs the power, emphasized by Kant, of mastering one's disordered

feelings, by the mere exercise of will—that is, by auto-suggestion. As a matter of fact, all suggestions, even those which come from another person, act through auto-suggestion, since even the foreign suggestions must become fixed and elaborated, must be adopted by the brain of the person to be influenced, before they can become efficacious.

D. Suggestion—Its Past and Present

It has seemed advisable to me to defer a consideration of the history of suggestion until the reader has become acquainted with the terms and definitions of the subject, instead of following the usual custom of making use of such retrospect as an introduction. Especially important did it seem to me to show clearly at the start that certain functions are of psychic causation, and therefore amenable to psychic influence. The same consideration also will constitute the basis for what is to follow. Let us begin, therefore, with those functional disorders which are of psychic production, those caused by suggestion and which, as already indicated, come under the designation "psychic contagion."

From olden times there comes to us knowledge

of a species of psychic disorder which manifested itself in a belief that the afflicted person had been turned into a wolf or a dog. These patients, especially with the approach of spring, were swayed by an irresistible impulse to follow the habits of wolves and dogs and to pass their nights in lonesome burial places.

The old and wide-spread belief in the existence of man-wolves seems to have furnished the basis for this delusion. In not a few instances this fancy has become epidemic and hundreds of persons have become cannibals, going on all fours, living in forests, and howling like wolves. Other persons imagined themselves to be dogs and went about snarling at all whom they passed. In some cases, without having been bitten, or without even having come in contact with dogs, they barked, frothed at the mouth, and in every act simulated rabies. This spurious hydrophobia, of course, had nothing in common with lyssa, or true rabies.

Zander relates that Marcellus of Sidoc in Pamphilia, a Grecian physician of the time of Marcus Aurelius, has described such a lycanthropic epidemic in hexameters, and from a later Arabic author we learn that in the sixth century B. C.

this cynanthropy or lycanthropy was endemic. In his "Contributions to the History of Medicine," Boettiger of Weimar adduces the oldest references to wolf-madness from Grecian mythology, and from this source we note that nearly all the barbaric tribes of the Middle Ages were afflicted at some time or other by this obsession.

Even in more recent times the man-wolf occupied so prominent a place in connection with the prosecution of witches and sorceresses that there can be little doubt that this form of mental disorder, evidently due to hallucinations caused by suggestive or psychic contagion, must have been epidemic, and that much of the belief in witchcraft and sorcery owes its origin to this cause.

In 1600 many scores of people in the Jura were executed for lycanthropy, and about this time a French judge named Boguet drew up a code in which he permitted ordinary witches to be strangled before they were burned, but provided that lycanthropes were to be burned alive.

Most noteworthy examples of the communicability of morbid nervous manifestations and of the wide distribution of such psychic epidemics are furnished not only by the witchcraft prosecutions,

but also by the associations of flagellants, by the children's crusades, and by the dancing madness of the Middle Ages. Witches, who, in all probability, were mostly hysterics, were supposed to be possessed or controlled by some evil spirit. All their actions, their appalling cries, the contortions of their bodies, the atrocities which they committed, were the work of the devil within them. Exorcism was the only cure. When this devil could not be driven out, incarceration, racking, and burning to death were the logical means of reaching the seat of the trouble.

The records of these witchcraft prosecutions, the drawings and paintings of that time, leave little doubt that a large number of the witches were sufferers from hysteria and that this disease furnished fertile soil for the development of all manner of sense deceptions and suggestions. Scourging, or flagellation, having been encouraged by the popes and prominent churchmen as a means of religious discipline, for penance and expiation, became popularized by the mendicant friars. In 1261, when Italy was under the bane of the greatest profligacy, according to the Monachi Patavini Chronica, a piety hitherto unknown suddenly over-

came first the inhabitants of Perugia, then the Romans, and finally spread among almost all the people of the country.

In processions of hundreds and thousands, at night with burning candles, naked even in the most severe winter, and headed by the priests bearing crosses and flags, the gentry and the common people, the old and the young, even children, marched through the streets of the towns scourging their bare bodies until the blood flowed, moaned and called upon God and His mercy, and threw themselves upon the altars in supplication. Some of these processions marched even over the Alps, and found imitators in Carniola, Styria, Austria, Bohemia, Moravia, and Hungary.

In 1348, in consequence of the desolating plague called the "black death," which spread from Asia through all of Europe, and which was looked on as a divine visitation, these same scenes were repeated, and this time Germany was not exempt. Associations of flagellants marched from place to place, praying and scourging themselves with knotted ropes. Like an avalanche these hosts grew and spread, drawing every one with them.

Additional evidence of the power of suggestion,

or psychic contagion, is furnished by the so-called children's pilgrimages, or children's crusades. These were taken part in by thousands of young people of both sexes, most of them between the ages of twelve and eighteen. Aventinus, in his Chronica, describes the first of these crusades, which took place in the year 1212, the children marching through Saxony, South Germany, and over the Alps to the borders of the Adriatic.

Without a leader, without means of subsistence, without money, sustained solely by their intense enthusiasm, these young wanderers began their pilgrimage for the purpose of delivering the Holy Sepulchre from the dominion of the Turks. Soon they were joined by men and women. Thieves and scoundrels associated themselves with the youthful crusaders, robbed, and plundered them. Many died from want and deprivation; some reached Genoa; others turned back, and, barefooted and hungry, exhausted from cold and suffering, derided and insulted, they again reached their homes.

A similar pilgrimage which started from Paris fared no better. A pilgrimage of one hundred children from Erfurt in 1237 also came to a tragic

end. These children started out dancing and singing, but soon fell exhausted by the wayside; many died, and, according to report, the others became afflicted with a tremor which remained with them for the rest of their lives. The last of these pilgrimages set out in 1458 for St. Michael in Normandy. Aventinus described this crusade as follows:

"Unexpectedly the children came; they had to run along. It was said that those who wanted to go along, but were restrained, would die. Many died of hunger, many were frozen to death, and some were captured in France and sold into bondage; not one came back to its home. The mothers could not hold back those who wanted to start. There followed a great pestilence."

In this connection let us recall what we have previously said regarding the power exerted by erroneous ideas, even when they are in no way dependent on organic disease of the brain. To-day, when among civilized peoples the scepticism due to cultural enlightenment has made the atmosphere immune to such contagion, these children's crusades are no longer possible. The same may be said of the dance madness of the Middle Ages.

In the year 1374 scores of dance-mad men and women appeared at Aix la Chapelle and danced for hours in a wild delirium, in churches and on the streets, until they collapsed from exhaustion. In many of them there ensued a tense expansion of the abdomen, of which they tried to rid themselves by tight bandages, by blows and kicks. During the activity of the dance, it seems, all sensory impressionability was eliminated. The imagination of the dancers held full sway. All manner of visions were conjured up before their eyes; they saw spirits whose names they muttered, and later they said they had believed themselves to be immersed in a stream of blood and had jumped so high in order to avoid it. Others, in their transports, saw the gates of Heaven ajar, with the Saviour and the Virgin Mother upon a throne, ready to receive them. This dance-madness, in many instances, was preceded by convulsions.

A fresh outbreak of this disease, which meanwhile had spread from Aix through Belgium and Holland, and along the upper Rhine, occurred in Strasburg in 1418. By order of the magistrate, the dancers were led in troops to the Chapel of St. Vitus in Zabern, there to be pacified by the

saying of mass, by prayers, etc. This dance-madness became extinct with the close of the fifteenth century, but along the Rhine traces of its existence are still to be found, as is shown by the annual saltatory procession to the grave of St. Willibrad in Echternach.

These examples which we have presented are instructive in many ways. Above all they show how persons with but little strength of character and of feeble will power—yes, even entire masses of people—may, by means of any idea and the imitative impulse, be stirred up to the commission of even the most absurd deeds. But they also show that the interpretation of these vagaries by the people of the Middle Ages did contain a justifiable nucleus. Ever since psychology and psychiatry have been dominated by scientific tendencies, we have endeavored to find a material substratum, some organic alteration which might be held responsible for any disorder, not only of the body, but also of the mind. Nevertheless, we are still warranted to-day in stating it as a law that a number of functional symptoms and disorders are psychically produced—needless to say, not by means of demonic possession, as was the mediæval

belief, but through the power of suggestion. The significant difference between our explanations and those of the mysticists, therefore, rests in this—that ours is founded on natural psychical causes, while theirs was based on supernatural and extraterrestrial causes.

The justifiable nucleus of the otherwise abstruse views of the Middle Ages, however, is to be sought in the fact that disorders of function, disturbances of body and brain action without any pathologico-anatomical basis, do exist. This view must be accepted as correct until the microscope and other refined methods of investigation will have demonstrated that these "functional" disorders and symptoms, too, are nothing else than manifestations of morbidly altered structures. That time has not yet come. If it be admitted that the people of the Middle Ages were correct in their assumption that hysteria and other neuroses were psychically induced, then their mode of treatment by psychic means cannot be considered at fault.

Diabolic possession can be treated only by exorcism of the demon. Deride this as we may, we cannot accuse our ancestors of having been illogical in their conclusions. To-day, instead of exor-

cism, we employ another means of treatment, one more in accord with our advanced knowledge, yet withal a psychic one.

Natural causes demand natural remedies. Psychic infection is quite as natural a process as is the physical infection due to bacteria. Similarly, the suggestion which we employ for the cure of such psychic infection is no less a natural remedy than, for instance, the Jesuit's bark used to cure malaria.

Fundamentally, therefore, nothing can be said against the point of view of the Middle Ages. Neuroses, being of psychic origin, may consequently be influenced by psychic means. Moreover, the far past had other explanations also to offer for the occurrence of hysteria and allied neuroses than that of diabolic possession. Natural causes, too, were acknowledged, and natural remedies were employed.

Of all things let us not lose sight of the fact that the cure or alleviation of disease through psychic influence is by no means a product of modern times. Inscriptions found on many of the most ancient monuments bear witness to the success attained in the cure of disease through mental influence. In fact, it may truthfully be said that the

methods of influencing the mind were better understood thousands of years ago than they are to-day.

What seems most amazing, however, is the fact that the sleep-like state which to-day is called hypnosis was known to the ancients and was employed by them for therapeutic purposes. Unquestionably the "temple sleep" of the old Egyptians was simply a hypnotic state. The priests, to whom, as is well known, was allotted all treatment of disease, were the ones to bring about this sleep. The patients were subjected to various preparatory ceremonies, which probably served to augment their faith and to increase their impressionability. It is quite likely that the baths, the fasting, etc., which formed part of the preparations for the "temple sleep," constituted, through their hygienic influence, an important factor in the production of some of the cures of the priests. During this sleep the patients, in answer to questions propounded by the priests, proclaimed the remedies which would restore them to health. These answers were considered oracular. It may also be assumed that the information obtained by the priests during this hypnosis furnished them with much knowledge of the previous life, as well as of the ordinary men-

tal processes of the patients. Thus was gained knowledge which became of the greatest value for future suggestive treatment and which could not have been obtained during the waking state.

Nor was the psychic aspect disregarded in the application of other medical ordinances. Even in the prescription of medicines, whose activity was certainly not underrated, the physicians of times long past deemed it useful to augment the mental influence on their patients by the addition of certain magic formulæ to the recipe.

Among the Hebrews the practice of medicine, exercised by the Levites, consisted in an appeal to the Deity and in sacrificial offerings, for which, when they were abolished in a later period, prayers were substituted. In a similar manner the art of healing among the old Greeks was clad in a religio-mystical garb. The oracles of renown, those of Æsculapius at Epidaurus and Pergamus, and that of Apollo at Delphia, attracted sufferers from all diseases from far and near.

In the case of the Greeks, too, as among the Egyptians, the "temple sleep" revealed its powers. Large "sleeping houses" were erected in the temples, and in these the patients, while in their sleep,

received divine utterances, probably suggestions by the priests. A certain amount of reverence was attached to this "temple sleep," too, by the Romans, for whom the prognostications of the Sibyls, as well, were of great significance. The peculiar condition which overcame the Sibyls during their utterances seems to have been closely allied to hypnosis, if it was not an actual hypnotic state. The Persian Magi also knew how to place themselves in a state of hypnosis, using the method of fixation. The Indian fakirs of to-day use the same method. So, in the fourteenth century, the monks upon Mount Athos, that body known as Omphalopsychites or Hesychasts, placed themselves in a hypnotic state by deep contemplation or by fixation of the navel. Let us pass by that period during which Theophrastus Paracelsus attempted to demonstrate the influence which the astral bodies exercised on one another, and, more particularly, on human beings and their diseases, and thereby laid the foundation for that doctrine of animal magnetism which in 1775 became generally known through the efforts of the Viennese physician, Friederich Anton Mesmer, and which, though erroneous, must be recognized as the forerunner of modern psychotherapy.

It was known long before Mesmer's time that animals could be put into a hypnoidal state of passivity. As early as 1646, Kircher, a Jesuit priest, had "mesmerized" chickens so that they remained motionless in any posture in which they had been placed. Two hundred years later, Wilson, in London, followed up these experiments by imposing a cataleptic state upon wolves, horses, and other animals. Further successful experiments of this kind have been conducted by Verworrn, the renowned physiologist of Goettingen, upon birds, snakes, frogs, and guinea-pigs.

Hollander calls attention to the fact that in Austria the law requires army horses to be mesmerized in order to shoe them. This procedure was introduced by a cavalry officer named Balassa, for which reason it is now known as "balassiren." By this method, says Hollander, "horse-tamers tame the wildest colts and the most vicious horses in an hour."

This "mesmerizing" of animals has nothing in common with the suggestion exercised upon human beings except the state of passivity of the will which is thereby produced. Through fear or fright the animal is thus placed in a condition of muscular

rigidity, known as catalepsy, during which it is unable to resist anything which may be done with it. Of course there is involved here no question of any psychic contact, of any "rapport" between the animal and the experimenter, yet remarkable results have been achieved through such balassing, or mesmerizing, of animals. Lion and other animal tamers, Hindoo fakirs, who at will place their poisonous snakes into a state of complete immobility or wildest furor, all exert their apparently marvellous powers through a dominance achieved by fixity of eye and general comportment. The ruler of animals or of human beings always owes his successful psychic influence in part to an imposing dignity which he may possess; but that which may be attained in animals only through fright or fear is effected by the suggestionist of human beings, through psychic contact, through the production of certain ideas.

This doctrine of animal magnetism entered upon a new phase when in 1814 Abbé Faria, of Paris, expressed the conviction that a magnetic fluid did not exist, but that the production of the phenomena of animal magnetism was entirely dependent on the will of the subject on whom the experiment

was being carried out. Since it is this principle which constitutes the fudamental idea, as we have already learned, in the causation of the manifestations produced by suggestion and psychotherapy, we must accord to Faria the credit of having been the first to recognize this truth. The views of Faria having been adopted in France, more particularly by Bertrand and Noizet, the Paris Academy of Medicine in 1826 appointed a commission to investigate the entire question of animal magnetism. Forty years previously, as a result of an opinion given by this same academy, the employment of so-called magnetic treatment (mesmerism) had been forbidden. Now the Paris commission recognized as true, within the limits placed on it by Faria, the manifestations produced by animal magnetism. Preyer says that, if to-day we substitute the word "hypnotism" or "suggestion" for the word "magnetism" wherever it occurs in the report of the French Academy, we should have no reason to find ourselves in disaccord with the thirty theses enumerated by that body.

Next to Faria, most credit is due to the English surgeon, James Braid, for our advance in knowledge regarding suggestion and hypnosis. Stimulated by

public exhibitions given by a French magnetist, La Fontaine, Braid in 1840 began his independent investigations, which culminated in the conclusion that a person may pass into a sleep-like condition as a result of intent fixation of a glistening object. This state, to which Braid applied the designation "hypnosis," was employed by him for the production of anæsthesia, of which he made practical use in his surgical operations. In his book, "Neurypnology," published in 1842, Braid says that concentration of the attention on the glistening point is as necessary as fixation.

Although Braid was the first to explain clearly the increase of suggestibility which is present during the hypnotic state and to make use of this condition of augmented suggestibility for therapeutic purposes, yet he undoubtedly started from a false premise. He considered the fixation, the physical stimulus, as the chief causative factor in the production of suggestion and hypnosis, while he entirely overlooked the psychic factor, the will of the subject, on which Faria had laid stress.

Faria's doctrine, however, did not receive a scientific foundation until Liébault, the physician of Nancy, took the matter up and showed that the

verbal method, the influence of words alone, was sufficient in itself for the production of suggestion, provided the suggestion were accepted by the person to be influenced. If, however, the constitutional character of the subject oppose the suggested idea, then its acceptance and consummation may be effected neither by fixation nor by verbal hypnosis.

Although a beam of light had thus been cast into this chaotic confusion, Liébault for a long time did not receive the recognition which was his due; he, too, had to learn by bitter experience how difficult it is for people to comprehend the most simple facts. It apparently was easy to believe that mystic supernatural influences could be transmitted to human beings by means of complicated artifices and manipulations, as was done by the old oracles, religious cures, and animal magnetism; but to accept comprehensible truths, and to exclude all that was supernatural in the explanation of recognized facts, seemed wellnigh impossible at a time which was still under the influence of Schelling's philosophy of nature.

Not until Bernheim of Nancy succeeded in promulgating Liébault's doctrines among the general public did they attain any measure of acknowledg-

ment. The existence of a certain opposition between the school of Nancy and that of Paris has already been mentioned. Charcot promulgated and defended, but by no means succeeded in proving, the theory that hysterics alone were amenable to the influence of suggestion and hypnosis. The Nancy school, by means of thousands of observations, has refuted this claim, and has clearly demonstrated that, although hysterics are exceedingly susceptible to all functional disorders originating in fallacious ideas, and, consequently, furnish excellent material for the exercise of all forms of psychotherapy, yet all this is true of other neuroses, as well as of organic diseases, to a certain extent.

We must yet refer briefly to those investigators of more recent times who have aided by their work in promulgating the doctrines of suggestion and its psychotherapeutic application. The list is a large one, and only a few names can be mentioned here.

In America, the names of Prince, Putnam, Sidis, and Muensterberg stand for all that is best in actual scientific work. The Society for Psychical Research, on the other hand, has devoted its attention chiefly to occultism, to the mystic manifestations of mental life.

Among the foreign workers and writers we must mention, in Germany, Albert Moll, Preyer, the renowned physiologist, Max Dessoir, the philosopher, and Albert Eulenberg, the neurologist; in England, Lloyd-Tuckey and Hack-Tuke; in Switzerland, Forel; in Stockholm, Wetterstrand, and, in Russia, Bechterew. This enumeration of names, which should be much extended, by no means signifies that psychotherapy is without adversaries. Later we shall become acquainted with their facts and arguments; here we will merely say that such opposition is of favorable significance for the future of psychotherapy. The history of medicine clearly demonstrates that those procedures which have been at once acclaimed and enthusiastically received have been short lived, while those which have been slow of growth and recognition have been of permanent worth.

The opposition to psychotherapy is due in part to the failures which have inevitably followed the mistaken or unwarranted employment of this method of treatment. Not every physician is fitted for the practice of psychotherapy. He who is not thoroughly convinced of the efficacy of this remedy will not be able to satisfy the public of its value.

Apart, however, from the misdirected and unaccepted suggestions made by physicians themselves, the great bulk of failures undoubtedly is due to the practice of psychotherapy by persons without medical training, who, because of their inability to make correct diagnoses, can have nothing but therapeutic unsuccess. Only the physician schooled in psychiatry is able to recognize the cases which are adapted for psychic treatment, and he alone can avoid the dangers with which suggestion and hypnosis are beset. To these more attention will be given in a future chapter.

It cannot be gainsaid, on the other hand, that the lack of critical appreciation which has confounded faith, prayer, and miracle cures with true psychotherapy, is in large part responsible for the discredit which has been cast upon the latter. Nor can we deny that astonishing improvements have been achieved by "Christian Science," the waters of Lourdes, the contact of holy relics, etc., without the concomitant use of physical or chemical remedies. Yet we must repeat emphatically that in such cases of amelioration it has never been a question of supernatural, but always of quite natural, processes.

As will be demonstrated in a special chapter, the beneficial results accomplished in those cases must be attributed to a concurrence of fortunate conditions which have neutralized the disease-producing psychic cause by means of contrary suggestions. Never is there involved a question of any "miracle," of the abrogation of any natural law. There does not exist a single authenticated case of organic disease which medical science has failed to cure which subsequently has been cured by suggestive influence. Such a case, if it did occur, might justly be termed a miracle. Since the disorders and symptoms which are most amenable to psychotherapeutic action are those that are due to mental influences, it can be of little significance whether the beneficial result is obtained in one manner or another; but what we, as scientific physicians, must desire and demand is the recognition of the fact that these beneficial results are quite as dependent on mental influence as is the disorder against which the treatment is directed, and that the attainment of success should not be left to a fortuitous happening, but attained designedly in accordance with physio-psychological laws.

This chapter should not be closed without show-

ing, by examples taken from most recent occurrences, that even to-day suggestion, when subservient to superstition and fanaticism, may become a tool of obscurity and crime.

Bechterew gives a full account of the aberrations of those sects, so numerous in Russia, and exemplified by the Dukhobortsi and the Raskolniks, which, blindly carried away by some idea, impulsively follow the leader who proclaims himself to be directed by God's inspiration, but who is actually dominated by hallucinations and delusions of his own brain.

Toward the end of the last century, seven thousand Dukhobortsi immigrated from Russia into Canada. There they did not find what they sought, for they did not want to obey the laws of any State, nor be the subjects of any ruler but God. As "pilgrims of God upon this earth," they are unremittingly in search of a haven in which they may live undisturbed in accordance with their fanatical views.

Still more extreme are the Raskolniks. In them certain mystical ideas resurrected from mediæval habits and thoughts became, through psychic infection, the source of a series of crimes. The

mental influence exerted by the life in the Raskolnikite cloisters, the isolation from the outer world, the persistent fasting and praying, all these undoubtedly furnished an appropriate atmosphere for the development and maintenance of religious fanaticism. Thus it came about that, only a few years ago, by order of the nun Vitalia, twenty-five persons allowed themselves to be immured alive within subterranean walls. Bechterew justly remarks, "He who allows the details of this appalling occurrence, beside which even the most extreme manifestations of Buddhist Asceticism are cast into the shade, to pass before his mental horizon, must certainly say to himself that these martyrs, who could give themselves up to death with such peacefulness, could do so only as a result of an irrefutable conviction, implanted by means of suggestion or auto-suggestion, that through such burial alive they would become the possessors of eternal salvation."

Of the details of this dreadful example of aberrant religiosity we will merely mention that Kowalew, the executor of this mass interment, was a peasant of limited mentality, entirely under the suggestive control of Vitalia, whose commands he

accepted even after she, together with his own mother, wife, and daughter, had been entombed and covered with earth.

After this brief historical sketch, which has taken cognizance of only some of the facts characteristic of suggestive influence, and having seen that suggestion in the hands of individuals either insane or dishonest may become an instrument of the gravest danger, we will proceed to a consideration of that use of suggestion which seeks to combat psychic infection with its own weapons, psychotherapy. We shall show that this remedy, whether employed by itself or with other methods of treatment, is destined to become a source of great benefit to suffering humanity—always presupposing that it be employed the same as any other remedy by the adept and experienced physician.

PART SECOND

PSYCHOTHERAPY

I. GENERAL CONSIDERATIONS

A. Definitions

WHAT is to be understood by "psychotherapy" can easily be deduced from the preceding explanations. Etymologically the word admits of a double interpretation, cure of the mind (*ἡ ψυχή, ἡ θεραπεία*), as well as cure through the mind.

Psychotherapy differs from psychiatry in that it concerns itself above all with functional disorders, or, more correctly expressed, with functional symptoms and their removal. That these disorders or symptoms, psychically caused and dependent not on organic changes but essentially on erroneous ideas, may be influenced psychically—that is, by the awakening of correct ideas—has already been demonstrated and will be made clearer in the following chapters. Inasmuch, therefore, as psychotherapy removes false ideas and the dependent

functional disorders or symptoms, it is actually a "cure of the mind."

It can hardly be necessary again to recall that by "mind," in the medico-scientific sense, we understand those manifestations of the central nervous system which find their expression in apperception, association of ideas, and conscious activity of the will. Just as diseases are nothing else than manifestations of life under abnormal conditions, so, in so far as functional disorders and symptoms are concerned, abnormal conditions are represented by certain false ideas, the removal of which is the task of psychotherapy.

If, furthermore, we remember how intimate are the relations which exist between body and mind, especially between the higher psychic functions and their bodily organs, the brain and the nervous system, then we need but recall the law of psychophysical parallelism to appreciate at once that a beneficial reaction of psychotherapy upon the physical condition cannot be wanting. This does not alone mean that, with the passing of erroneous ideas, the dependent functional disorders must disappear, but it also signifies that purely physical diseases, associated with organic changes as well,

may be beneficially influenced by psychotherapy—of course, not directly, but by the devious channel of enhancing the confidence of the patient in the therapeutic power of medicinal remedies or any other curative factor which may be employed. Psychotherapy, therefore, is "cure of the mind" in so far as false ideas are removed, and, on the other hand, is "cure through the mind" in so far as purely physical states may indirectly be ameliorated by means of suggestive influence.

B. The Justifiability of Psychotherapy

After all that has been said, it may seem superfluous even to discuss the question of psychotherapy's inherent right to intervene in relieving human suffering. Nevertheless, we must not forget that there exists a constantly increasing number of learned, half-learned, and unlearned individuals who are of the opinion that the efforts of medicine and hygiene, hence also those of psychotherapy, cannot be made to harmonize with the aims of nature. Applying the law of evolution unrestrictedly to human society, these people say that nature, by means of the struggle for existence, strives to cause a survival of the fittest, but that it cannot attain this

aim in human beings as it can in plants and animals, because the science of medicine is steadily opposing its purpose.

By means of the intense competition for the possession of the restricted existing materials of sustenance, nature of itself weeds out the unfit. The final word of Darwinism, although Darwin himself disclaimed this application of the developmental law, may be taken to mean that the sick and the feeble, who are not equal to the struggle for existence and who fall a prey to every infection and other injury, should be left helpless to their destiny, that they should be allowed to succumb in the way animals and certain aboriginal peoples are left to their fate. Certain votaries of this prejudiced and fanatic point of view go still further and, following the philosophy of Nietzsche, who died insane, declare compassion to be a reprehensible frailty on the ground that it is opposed to the intent of nature. In the opinion of these persons, a strong and healthy race needs neither medicine nor hygiene, both of which serve merely for the artificial preservation of the sick and the infirm and, in addition, enable them to propagate their kind. Pestilence, disease, and the exertions inci-

dent to the struggle for existence, they say, are nature's means of selection; he who is not able to withstand such ordeals is destined for extinction, and medical science should not intervene protectively.

All of this may be answered by the recognized fact that civilization has completely changed the natural conditions of life, and that, for this reason, the law of development as affecting human society must be materially restricted in its application. The number of accidents occurring as a result of industrial conditions has been augmented proportionately with the progress in the development of technical appliances; nor, despite our vaunted civilization, has the number of those injured on the field of battle been diminished.

The victims of industry and of war may have been just the ones selected by nature for survival. Should we, then, leave them to their injuries and stand passively by, waiting to see whether their broken bones will unite, their torn tissues heal, their loss of blood cease, without intervention? So ridiculous is this thought that no person of intelligence can question the right of surgery to come to the aid of nature in such cases, and, in many instances, to forestall fatal results.

Material conditions have been so altered by civilization that to-day life is less a question of bodily than of mental fitness. For people living in a rough and uncultivated land, not yet influenced by cultural development, and for those who pass their lives in a primeval forest or on a lonesome prairie, the natural requirements are entirely different, of course, from those of dwellers in a densely inhabited community. Where the people are isolated and dependent on themselves, they require, in their struggle for existence, well-developed muscles and impregnable health, but where pioneer work is no longer needed other qualifications are essential.

Civilization causes a survival of the fittest in quite another sense than does nature. Our civilization could not persist and could not develop if pestilence, disease, and accident, through which the best cultural elements are often swept away, were allowed full sway. Nor should we lose from sight for a moment the fact that civilization has been the cause of numberless evils which originally did not exist and against which nature has supplied no means of defence. We ourselves can and must provide for such defence by scientific insight into

the origin of these evils and the methods of combating them.

It cannot but be considered fortunate that the very same civilization which, through interference with natural laws of life, has been the cause of so many new ills to man, should at the same time place in his hands, through the achievements of medicine and hygiene, the weapons with which these afflictions may be combated.

Animals are furnished by nature with all sorts of means of defence, without which they would be helpless against every attack. Once they have become domesticated these means of defence, being no longer necessary, waste away from disuse. Nature has not provided the domesticated animals with the implements which their subserviency to man makes requisite. The horse, when living in freedom, needs no artificial protection for its hoofs, but without such protection it soon goes lame on the pavement of our streets. Civilization, therefore, has altered the conditions under which the horse naturally lives and, making demands on this animal for which nature has made no provision, produces an affliction which can be forestalled or remedied only by civilization itself. This one ex-

ample suffices to show that medical science does not work against the aims of nature, but meets the altered conditions of life which civilization has produced.

Considerations of still another kind make the thought that medical science is superfluous, or even detrimental, appear absurd. Human beings are not animals among whom exists no law of morals, but only the law of superior force. Frequently the cultural elements of greatest worth are those which, in the sense of nature, are not fit. Not always does a strong body go together with a strong mind; sometimes the body is weak but the mind strong. Often the most valuable cultural elements, great scientists, inventors, writers, are individuals of infirm constitution, and yet their worth to progress is found to be far greater than that of the great mass of people.

The able, the robust, the healthy, therefore, are not necessarily the most precious. Darwin himself was an invalid the greater part of his life. How many valuable lives would have been lost to the world had selection been left entirely to nature! Then humanity would have consisted of none but the strong, but the fact that these powerful ones

had rid themselves of the sick, the infirm, and the helpless would mean at the same time a subjugation to atavistic instincts, in consequence of which the human race again would sink to the level of the brute.

So deplorable a state could be brought about only through the stunting of that which is best in man, of that which raises him high above the animal, and gives him the character of an ethical personality, the feeling of altruism. Nothing but cold, crass egotism can endorse the doctrine which places compassion and weakness on one plane.

Since, therefore, it is personal interest which bids the human race to preserve the sick and the feeble, in so far as they constitute valuable cultural elements, considerations of an ethical and altruistic kind demand that the same be done for those of inferior worth.

The endeavors of medicine and hygiene are rooted in a soil of altruistic sentiment, which looks beyond the mere question of benefit. Yet medical science does not desire artificially to prolong the lives of degenerated and incurable weaklings. Its aim is to make the weak strong, the sick well, to restore to them the joy of living and of usefulness

so they may again fulfil their missions in life. It aims at the recognition and the avoidance of those noxious influences which threaten human health and well-being at every step, and which modern cultural development has called into existence in the shape of new dangers and diseases in nowise ordained by nature.

It aims also, however, to protect the healthy against any injury which might be caused through the physically or mentally diseased. To stand passively by while the helplessly degenerate transmit noxious germs to healthy individuals would no longer be compassion but would be criminal weakness. All that has been achieved by medical science through prophylaxis and therapeutics is the outcome of laborious investigations the justifiability of which can be questioned only by visionary fanatics. Unfortunately even in this twentieth century there exist people who believe disease should be accepted with resignation as a divine dispensation. Instead it should be a matter of universal knowledge that disease is a result of our ignorance and disregard of natural laws. If the sins of the fathers be visited upon the children unto the third and fourth generations, it is a purely natural proc-

ess of development, which must take place even if there is no co-operation of supernatural powers. For any one who realizes thoroughly that it is as impossible for races as for individuals to return to a state of nature, to the days of childhood, from maturity to immaturity, from reason to belief, and that they must meet the age of maturation and independence with fortitude and decision, there can exist not the least doubt that in our battle against disease we cannot rely on nature to make any selection adapted to the requirements of civilization, much less expect any aid from chance occurrence or miraculous happening. Even from a religious point of view it would be unreasonable to expect that God would intervene between us and the orderly course of natural processes for the purpose of mitigating suffering of our own making, and for which there exists a natural relief.

It will be unnecessary to do more than refer to the fact that a belief in the miraculous is sure to be a hindrance to progress of all kind, in that it causes a passivity which allows every misfortune unopposedly to take its course. No words are truer than those of Horace, "Nihil sine magno vita labore dedit mortalibus," and we must learn that progress

is essentially a question of our own endeavors, and that the impulse which is innate in the human race, to defend itself against evils, whether dependent on our own misdeeds or not, has been implanted in us so we may learn to recognize the laws of nature and adapt ourselves to them.

What can be accomplished by such persistent endeavor is nowhere more strikingly shown than in the remarkable achievements of medical science and hygiene. That we are no longer impotent against pestilence and disease which formerly depopulated entire countries, that infant mortality has been reduced extraordinarily, that the average duration of human life has increased notwithstanding the exhausting struggle for existence, that we are able to trace most processes of disease from their first causes to their final stages and to influence their course prophylactically as well as therapeutically, are facts which of themselves must silence all objections to the legitimacy of the science of medicine, whether they be raised by fanatics on the subject of nature's manner and purpose of selection or by religious enthusiasts. Many an unsolved and apparently insoluble enigma still confronts us; our discernment of the course of disease

and of its remedies is by no means perfect, and we still must allow people to die without ascertainable cause; but not even those facts constitute valid arguments for the opponents of medical science.

The weakling alone is discouraged by failure. The physician never is apathetically resigned, but ceaselessly strives onward along the road which his desire to triumph over disease and suffering bids him take.

Special objections to psychotherapy may be raised. With a certain amount of justice it may be said this branch of therapeutics has not yet earned its right to recognition. It may be said that medicinal therapeutics, surgery, all physical means of treatment act by material effects which may be seen, felt, or recognized in some other way. It may be argued that the basis of the psychotherapist's work still is insecure, while the surgeon who removes a malignant growth, opens an abscess, sews up a wound, or ties a bleeding artery is acting in accordance with the requirements of exact science, and the physician who combats an infectious disease by means of the corresponding antitoxin, who reduces fever by a withdrawal of heat, who makes use of quinine in the treatment of malaria,

etc., is sustained by medical and physical laws, or, at any rate, by practical experience. It may be contended that in psychotherapy the material, the physical basis is wanting; that it appeals essentially to the idea, to the power of imagination, to belief; that it makes use of no other method than that of declaration; that it is comprehensible how the medicaments of the physician or the knife of the surgeon produce curative physical changes, but it seems entirely incomprehensible that bodily disorders which have defied other methods of treatment can be influenced by psychotherapy, by a simple declaration.

Such scepticism would be fully warranted were we to maintain that organic tissue changes can be done away with by means of psychic treatment. But, as we have shown before, psychotherapy can have for its object only the cure of functional diseases and functional symptoms, diseases of the imagination, which despite their immaterial basis are perceived as actual diseases. Still, psychotherapy bears no impress of the mystical as do the faith and mind cures of confused theorists. Its results, indeed, may be the same as those attributed to the waters of Lourdes or the holy coat of

Treves, but it does not ascribe them to miracles, to supernatural occurrences, but shows them to be in conformity with natural laws which enable us to understand the contraction of a muscle when it is stimulated by an electric current or the palpitation of the heart under the stress of emotion.

In the chapter which is to follow we shall show that ignorance or disregard of these laws of nature involves psychotherapy in precisely the same dangers as it does the practice of medicine in any form by the unqualified. Here it need merely be stated that psychotherapy is based on no other principles than those which must guide all therapeutic methods.

The same given causes under the same given conditions must always produce the same effects. Therein lies the justification for psychotherapy, if any outside its practical successes be demanded.

Certainly Christian Science, as well as all other forms of faith and prayer cures, is psychotherapy just as much as the latter may be looked on as cure by faith in that it is dependent on faith in the suggested idea. All suggestion remains ineffective in the absence of faith, in the absence of its acceptance by the patient. That it can, however, exert

most astounding influence on the functions of the body, when once it is firmly established in the brain, has already been shown by various significant examples. Is there any reason, then, why this influence of mind or imagination on the bodily functions should not be utilized therapeutically?

Scepticism is permissible only toward that form of psychotherapy which ascribes cures to a miracle, to a supposed response to prayer in the shape of supernatural intervention between man and the order of nature, with a suspension of causal laws. Later we shall discuss in detail the aberrations which have resulted from this pseudo-psychotherapy, which, on the one hand, claims to cure all diseases indiscriminately by means of faith, and, on the other, has a fundamental disregard for all of nature's remedies. Faith in any therapeutic procedure, when employed under conditions which the experienced physician recognizes as suitable for suggestive influence, is classed by scientific psychotherapy with the natural remedies. Scientific psychotherapy, moreover, differs from Christian Science in limiting itself to the use of suggestion only in suitable cases, at the same time allowing full latitude in every instance to any other method

of treatment and considering it thoroughly warrantable to reinforce the action of any medicinal agent by arousing a belief in its curative virtues.

The previously cited principle that the expectation of the occurrence of a certain physiological or psychological effect tends to bring about that effect becomes of practical import in the exercise of psychotherapy.

Recovery is what an invalid anticipates and hopes for. It is evident, therefore, that in psychotherapeutic treatment a belief in recovery is to be suggested above all else. As Moebius says, "Faith is the simple mental remedy, whether it is faith in recovery or faith in this or that curative procedure." No matter under what guise the suggestions which are to arouse or to augment this faith in recovery have been employed, it is always the anticipation of improvement which causes their beneficial action.

Daily life furnishes numerous examples of this palliative and curative influence of faith. How many minor ills are ameliorated by the mere assurance that they are of no import and will pass away? Is the mother's statement to her child suffering from headache that the pain soon will cease any-

thing but psychotherapy? Is not consolation in misfortune or in sickness also a remedy that acts through suggestion? Our friends comfort us in our physical and mental sufferings because they know that consolation lessens distress and ameliorates the condition of body and mind.

If the reassurance of a friend whom we know not to be competent in medical matters can produce alleviation in many diseased states through the suggestion which it carries, how much more potent must be the suggestion conveyed by the physician who wears the garb of authority! Should it astonish us if many remedies which the adept physician prescribes carry with them a suggestive influence in addition to their physiological one? The patient is anxiously intent upon carefully following every detail of the medical ordonnance; he counts each single drop, carefully adds and stirs the water, imbibes the mixture, and then awaits the improvement, which often sets in before there can be any actual remedial effect of the medicine, any question of its assimilation by the tissues of the body. Of course, it must not be thought that all remedies act by means of suggestion. The materia medica contains tested remedies so specific in

their action that such a supposition would be absurd.

Here again it is not out of place to lay stress on the fact that a reversal of any physiological drug action through suggestion, as, for instance, a sudorific effect from atropine or a laxative one by means of tannin, can never be produced. When all has been said, however, there still remain numerous remedies which, in all probability, carry with them simply a suggestive action. Otherwise, how could we understand the daily advocacy of new remedies, said to be of extraordinary efficiency? As a matter of fact, the early employment of such remedies is attended with unusual success; physician and patient are gratified that a specific has been found at last. Soon, however, that enthusiasm wanes; dispassionate discrimination takes its place and it is seen the efficiency of the remedy was due entirely to faith in its activity, and that both efficacy and faith had passed away simultaneously. Not only to many patent medicines and to the panegyrics of charlatans, whose cleverly worded advertisements create about the undiscerning public an atmosphere of suggestion, are such effects of faith due. It cannot be denied that critical and sceptical physi-

cians frequently are the victims of self-deception which also is sure to influence the public temporarily. It is clear, however, that no scientific and conscientious physician will prescribe, merely to produce a suggestive influence, a remedy of whose inefficacy he is convinced. Such action cannot be justified in any circumstances. Science should never prostitute itself to become the tool of wilful deception, even if it is of no importance to the patient whether his improvement be due to the remedy itself or to a belief in its curative virtues.

The domain of psychotherapy is ample without resorting to any such means. All the complaints due to actual disease, but which are magnified by mental processes which cannot be comprehended by the patient, all the functional disorders of neurasthenics, hysterics, etc., the many associated symptoms of organic disease due to fear and apprehension of future occurrences, to introspection and to erroneous deductions from readings of varied nature, properly belong in that domain, and there psychotherapy will find a fruitful and grateful field for the exercise of its influence.

C. Dangers of Psychotherapy

That psychotherapy has its dangers has already been stated. This may be understood easily if we but consider that treatment by suggestion is simply a part of general therapeutics. Just as the surgeon first must learn all about the operations which he is to perform and as the physician must know the toxic action of all drugs which he employs, so must the psychotherapist be well informed as to the numerous precautions which the practice of his branch entails. Every specialist at least must have such knowledge of his special branch as will enable him to make correct diagnoses and to institute proper treatment in extraordinary cases, and to do that with greater precision and certainty than can be expected of the general practitioner. What would be thought of a surgeon who is not thoroughly versed in topographical anatomy, or who is not master of the operative technique? What of the clinician who cannot differentiate a bronchial from a cardiac asthma? Similarly the psychotherapist has missed his vocation if he is not the possessor, in addition to a good general medical education, of special knowledge of the psycho-physiological

laws, of the functions of the mind and the nervous system and their reciprocal relations under physiological as well as pathological conditions.

All dangers which may possibly follow the employment of treatment by suggestion are attributable, without exception, to incapability or neglect on the part of the psychotherapist. Morphine in the hand of the physician is a remedial blessing, in that of an inexperienced layman or a criminal a lethal poison. Psychotherapy when employed by the incompetent becomes a curse instead of a blessing. For the psychotherapist who is not properly schooled, the practice of suggestive therapeutics will be nothing more than uncertain and haphazard experimentation in the course of which, when favored by chance, he may occasionally obtain a certain degree of success. As a rule, however, he will cause only harm.

The greatest danger lies in making an error in diagnosis, in a failure to recognize the disease actually existing. The scientifically trained physician is only exceptionally liable to err in this manner; the lay practitioner, on the other hand, cannot reasonably be expected to possess any accurate knowledge of the complicated conditions met with

in disease, or any capability of differentiating between organic and functional disorders, and, therefore, will usually be in error. Such error will cause the patient to conceive himself to be afflicted with the disease which has been ascribed to him. Thereafter it will be easy for him to obtain information concerning the symptoms of that disease through popular scientific writings, and, provided his belief in the faulty diagnosis be sufficiently strong, he will not fail to discover those very symptoms in himself. Meanwhile the real disease remains uncared for, and, the proper moment for therapeutic intervention having passed, may become refractory to therapeutic influence of any kind. The damage thus has been increased twofold. Not only has the patient not been freed from his primary trouble—the malady, on the contrary, having been aggravated—but he also has had thrust upon him another which, albeit one of the imagination, is experienced as an actual disease.

These remarks bear particularly upon the adherents of Christian Science and upon visionaries of other kinds who, as a matter of principle, disparage the employment of all therapeutics and, looking on disease as a visitation, perhaps a pun-

ishment for sin, expect a cure to be wrought indiscriminately and solely through faith and prayer. It goes without saying that for such persons a correct diagnosis is not of the slightest import. Let it be stated parenthetically, however, that the majority of church congregations, irrespective of creed, have taken a stand against believers in such mistakes, and have expressly recognized the obligation to employ the remedies furnished by science, instead of awaiting hopefully the intervention of miraculous happenings.

Since in psychotherapy no instrument or chemical substance is used, but simply assertions which may be considered entirely harmless, it may be asked how can there be any danger at all in the use of suggestive treatment, no matter how incorrectly employed? It is precisely in those so-called harmless assertions that the danger lies. Adopted by the person who is being treated, they become fixed in his brain, are transformed into perceptions, and impulses of the will, and thus under certain conditions may develop into a controlling power over the entire personality, and, through the resultant influences on the functions of the body, may carry in their wake disorders which have not been present before.

Special precautions are required in the use of hypnotism. Incorrect employment of it may bring about permanent harm. Through hypnosis the impressionability for suggestive influence becomes increased. The person in that state, consequently, subordinates his will to that of the hypnotist more readily than during the waking state. The object of all psychotherapy should be the strengthening of the patient's will. When that object has been defeated and the will power enfeebled, the fault lies in the method employed. True, the hypnotized subject can never become a volitionless automaton. No hypnotist can coerce him to commit deeds which are repugnant to his fundamental character and which he could not have been induced to commit during the waking state. Still, a conscienceless hypnotist can designedly and permanently weaken the will of a patient and place him in a condition of abject dependence in order to take advantage of him for selfish ends. Hysterics who have been frequently hypnotized acquire an augmented suggestibility, not only in their relations to the hypnotist, but to every one else, so that even in the ordinary occurrences of every-day life their thoughts, feelings, and actions may be swayed

easily. Such subordination of the will must be prevented under all circumstances, for the only justifiable object of suggestion and hypnosis must be to effect a cure. Once that object is ignored all dangers incident to psychotherapy will surely arise.

In certain conditions it may be excusable for a physician to institute hypnotic experiments for purposes of study, and that will be justifiable if care is taken to exclude all harmful influences. But the use of hypnotism can be characterized only as deprecable and unwarrantable when, as has been done, a neurasthenic patient is led through suggestion to have the experience of a raging storm, during which the house is struck by lightning, and, through reacting to such suggestions as though to an actual occurrence, is overcome by terror from which he never recovers; or when, for the purpose of studying post-hypnotic phenomena, the hypnotist arouses sense deceptions which leave the patient in a state of fright.

Among the dangers of hypnosis mentioned by many authors must be classed the artificial production of hysteria. Others claim, because of their observations, that hypnotism is responsible for disorders of intelligence, for nervousness and head-

aches. Still others contend that hypnosis has been the productive cause of harmful auto-suggestions, or that the suggestions implanted during the hypnosis have a tendency to recur during the waking state, even without the special command of the hypnotist.

All these ill effects and dangers, however, are rocks on which none but the inexperienced are wrecked, while the trained and adept psychotherapist, he who but rarely makes use of hypnotism, knows how to avoid them. For the psychotherapist who practices with a thoroughly conscientious observance of the responsibilities involved, suggestion during hypnosis or during the waking state always represents simply a curative procedure, the dangers of which fade into thin air when the art of diagnosis is combined with the knowledge of therapeutic laws.

D. Christian Science, Faith and Prayer Cures

Twenty centuries of progress in the training of thought and in the discernment of nature's processes has not been sufficient to free mankind of the idea that the omnipotence of God must disclose itself, as well as in many other ways, by a constant regulation of the functions of the human

body in health and disease. And wherever we find that idea firmly implanted we also find the outcropping of superstition, with the wonder cures dependent on it. Hence, even in this era of enlightenment and precise, unprejudiced investigation, we find the most pregnant scepticism and the most crass superstition existing side by side. That condition simply proves that history repeats itself.

In a preceding chapter we spoke of the temple sleep, a function which two or three centuries before the Hippocratic era—at a time, therefore, when Greek culture was dominated by theistic principles—represented a factor in the art of medicine the employment of which was fully warranted. As Magnus very justly states, this temple sleep must be looked on as evidence of a faith notable particularly for the depth and fervor of the sentiment which prompted it; of a faith, it is true, which was artless and childlike, but always touching. At that time this function contained as yet no trace of superstition. It represented the pure and uncorrupted expression of the belief then current that human art was futile against all disease, and that help could be had only from the

gods, who were credited with regulating and, in fact, producing even the smallest detail of mundane occurrences.

An abrupt change in that situation came when medicine perceived that the manifestations of disease were not the results of supernatural interference with the functions of the human body, but disturbances of bodily life produced by terrestrial, natural factors. That point of view was first defended in the writings of Hippocrates, and thereafter the temple sleep, which previously might have been excusable because of the lack of proper understanding of the occurrences of nature, lost all right of being. The more intelligent comprehension of those occurrences should have caused the temple sleep to disappear absolutely from the art of medicine; but, as that did not occur, it necessarily degenerated into a superstitious imposture. No one but the priests can be blamed for this unfortunate condition. They, above all others, should have directed into proper channels the beliefs of the sick and the infirm who, in childlike piousness, crowded the temples in search of health. By not doing that, and by trying in every possible way to maintain among the masses the old belief in the thera-

peutic capabilities of the gods, the priests made themselves disseminators and allies of superstition. With the decline of antique culture and religion, the temple sleep by no means disappeared; it merely became altered in form and continued to persist, under the name of church sleep, as belief in the miraculous powers of saints and relics, and ultimately as the Christian Science of modern times.

These facts are of great importance in making the ultimate estimate of Christian Science, faith and prayer cures, because a correct decision must be based on the question whether those cults are governed by a lack of appreciation of the true facts, or, knowing them, are the purveyors of wilful deception.

Notwithstanding the belief in the potency of the temple sleep was thoroughly shaken as early as the sixth century before the Christian era, the priests were untiring in their endeavors constantly to reinforce this credence by all manner of superstitious practices. The sixth marble votive tablet found in the Æsculapian sanctuary at Epidaurus gives evidence of the kind of miraculous occurrences reported by the priests. It was their custom to record on such tablets, reports of the cures which

took place in their sanctuaries. It is narrated on this sixth tablet that a blind man, Hermon by name, had regained his sight through sleep in the temple. But, it seems, Hermon was rather parsimonious, for he departed without showing, in coin of the realm, his appreciation of the miracle which had befallen him. Doubtless this ingratitude greatly offended the god, for he forthwith deprived Hermon of his vision again. Another temple sleep, together with an adequate monetary contribution, was required to mollify him and induce him once more to restore Hermon's sight.

Let us take note here of various instances which Magnus has critically recorded in his book on superstition in medicine. Mummolus, who was sent by King Theudebert as ambassador to Emperor Justinian (527–565 A. D.), was much harassed by pains due to stone in the bladder, and on the ambassadorial journey suffered from such an attack. He must have been in great agony, for he made his will without delay. He then was advised to spend a night of sleep in the church of St. Andrew at Patras, where the saint then was accomplishing most wonderful cures. Mummolus, racked by pain and fever, had his bed made on the stone

tiles of the sanctuary and there awaited further happenings. At midnight the sick man suddenly was awakened by a strong desire to urinate, and soon passed a stone of such size that it fell with a ringing sound into the urinary vessel. From that hour Mummolus, who only shortly before had despaired of life, was restored to health, and soon afterward he started on his homeward journey.

Fedamia, a woman living in Brioude, the capital of the modern department Haute Loire in France, had been paralyzed for years. The church of St. Julian then enjoyed a large reputation in Brioude, and, as Fedamia was penniless, her relatives took her there so that, even if she could not regain her health, she could at least earn some money by church beggary. For eighteen years she followed that pursuit. Then, on a Sunday night, when she was sleeping in the colonnade adjoining the church, there appeared a man who took her by the hand and led her to the tomb of St. Julian. There she prayed most devoutly, and while doing so she felt an actual load fall from her limbs. All this, of course, happened in a dream, but when the invalid awoke she was well again and, to the astonishment of the assembled people, was able to walk

to the grave of the saint as she prayed aloud. A blind deaf-mute named Amagildus also tested the sleep in the Church of St. Julian in Brioude, but it seems the saint was not always pliant to the wishes of the sick. Amagildus did not have to spend eighteen years in the basilica, but he did have to sleep an entire year in the colonnade of the church ere the curative power of the martyr freed him from his sufferings.

Veranus, the slave of a priest, had so severe an attack of gout that for a whole year he was deprived of all power of motion. His master then vowed to consecrate him to the sacerdotal order provided St. Martin would heal him. The sick man was carried into the church and laid at the feet of the statue of the saint. For five full days there was no change in the condition of the sufferer. On the sixth day a man appeared to the slave and stretched his leg. Frightened, he jumped up, when lo! he was cured. And for many a year he served St. Martin as priest.

A most noteworthy cure was effected for the German Emperor, Henry the Second (1002–1024), called the saint. He was suffering greatly from vesical calculi, and for that reason took refuge in

the Italian monastery, Monte Cassino, which then stood in marked medical renown. The monks of Monte Cassino, who usually were most expert in such cases, seem to have had no confidence, however, in their medical ability when the emperor came to them as a patient, for they withheld from him all mundane medicine and relegated him to the cure of heaven—more especially to the healing power of St. Benedict. This saint visited the sick man when he was asleep in the monastery, performed the operation, and departed after having placed in the patient's hand the stone which he had removed from the bladder. Certainly this visit of the saint was more in keeping with the dignity of the patient than if the operation had been left to mere mortal hands, even if they were those of pious and learned monks.

Alpinus, Count of Tours, suffered for years from an affection of the foot, so all joy in life was gone and he remained bedridden, sleepless and unable to eat. Repeatedly he had implored St. Martin to heal him, but in vain. Finally, however, the Count sank into a deep sleep during which St. Martin came to him and made the sign of the cross over the affected foot. At once all pain disappeared.

Alpinus was restored to health and able to leave his couch.

On another occasion St. Martin of Tours appeared to a woman who was deprived of the use of her hands as a result of contraction of the fingers. These the saint extended forcibly so as to tear the contractured tendons. During this operation, strange to say, the saint was clad in purple.

Distinct specialistic tendencies and qualifications were attributed to certain saints. St. Anna, for instance, practised opthalmology; St. Judas was adept in the treatment of coughs; St. Valentine excelled in treating falling sickness (epilepsy), and St. Catherine of Sienna in treating the plague. Not even the cattle were neglected, for St. Roch of Montpellier was distinguished especially on account of his veterinary activities.

Various means were used for obtaining the aid of one or the other of these saints. The most simple, probably, was to attend mass in a local church and to offer a sacrifice to the saint. Less easy was a pilgrimage to the shrine of this or that saint of medical renown. Such a pilgrimage was undertaken usually on the birthday of the saintly physician, for the saint on that day seemed to be

specially disposed for the practice of medicine. At any rate, the Chronicles report that on those days the most difficult cases were successfully managed in large numbers. As we have seen, the saints often exhibited no haste to exercise their medical dexterity, occasionally permitting patients to await their help for years. For that reason the church inaugurated the following very practical and valuable plan. Adjoining the church spacious accommodations were installed for the reception of patients. There those in search of health could obtain food and shelter and peacefully await the intervention of divine help. This arrangement was of especial value for the many patients who retained their health only so long as they remained close to the saint but had relapses as soon as they returned to their homes.

On the whole, the church sleep, together with the prolonged sojourn in the church shelters, which often were like hospitals, was rather inconvenient, especially because of the difficulties and dangers incident to all distance travel in the Middle Ages. It became necessary, therefore, to conceive a method by which the medical aid of the saints could be brought within the reach of the afflicted at all times.

Relic worship was the method chosen. The bodies of martyrs who had given up their lives for Christianity or of saints especially distinguished for their piety were believed to be endowed with special miraculous power. Furthermore, it was believed that power had been transmitted by the earthly remains of martyr and saint to all objects with which they had been associated during life. These objects or relics in turn were able to exercise similar miraculous power over any other object brought into contact with them. It was easy to send such objects all over the world and thereby make the original relic indirectly accessible even to those invalids who were unable to undertake a long pilgrimage.

Special healing virtues, for instance, were ascribed to the water with which the tombs of the saints were cleansed at Easter; any sick person washed with such liquid soon would recover, it was believed. A certain Countess Eborin was so ill that she was convinced her last hour had come. She was transported to the church of St. Martin at Tours and there was washed thoroughly with water dirtied from being used on the saint's tomb. The expectation of cure did not fail to produce

its effect, for the Countess was well from that moment.

It seems, however, that the medical achievements of the saints did not gain the confidence of the laity nor of the priests to such an extent that the professional doctor was renounced entirely. Even St. Gregory of Tours, whose writings contain an endless fund of knowledge regarding the miraculous cures achieved by the saints, sought help, when he became sick, through remedies administered by a terrestrial physician in conjunction with the divine remedies. Generally, however, in order not to weaken the wide faith in miracles, and also, perhaps, to prevent curtailment of the church's monetary revenues, the priests were studiedly cautious to ascribe all recoveries of the sick directly or indirectly to the saints as intermediaries of the Almighty, even when the cures were due to natural causes.

In all these examples from mediæval times, to which could be added numberless instances from the present, it may be seen without difficulty that the problem involved was one of functional disorder, which faded away under the influence of the power of the imagination, represented by a belief

in miracles; or, admitting some of the cases to have been of an organic nature, that the happy results were achieved by natural medical or surgical means associated with dexterous trickery, possibly with the best of intentions, through which the patient was kept in ignorance of the true character of the help which he received. There can be no doubt many Christian priests of the Middle Ages, as well as their colleagues in the Greek temples, did not disdain to employ such conscious deceptions, for it is certain they were by no means ignorant of the natural causes of disease and of the processes of recovery. Let us not forget that, during the Middle Ages, the Christian monasteries not only were the disseminators of humane culture, but also gave protection and encouragement of the highest order especially to medicine. It may even be said without exaggeration that, at certain periods of the Middle Ages, Christian monasteries bore the same relation to progress in medicine as later did the universities. Not only did the Christian monks foster nursing and medical treatment of the sick, but they also devoted much time to the scientific study of medicine; and, what is more important, they were thoroughly conversant with the medical

classicists of antiquity, Hippocrates, Galen and others, who had demonstrated convincingly the irrelevancy of supernatural occurrences to the causation, and of the temple sleep to the cure of disease. All medical culture, in short, was confined during that period to the monasteries, which furnished a far larger proportion of members of the medical profession than did the laity.

In that condition of affairs it might have been expected the monks and secular priests would use their medical knowledge to combat the abuses which were perpetrated by the use of the bones and the names of saints. But, neither during the Middle Ages nor subsequently, did they volunteer to correct those abuses. Subordinating their better knowledge and moral sense, they not only failed to instruct the people correctly, but in countless instances allowed patients to believe cures had been wrought by this or that saint although, as a matter of fact, it was the monks themselves who brought about the altered state of health.

We must not, however, disregard the fact that the mediæval monks and priests were quite as much a product of their times as we modern people are the product of ours. The Middle Ages having

been the period of miracles, demons, and witches, the clinicians of those times naturally had a different conception of miracle and demon belief than we. Through their devout and fervent faith in the omnipotence of God, the Christians of those times became convinced He could and did at all times manifest His omnipotence by altering the course of natural processes and terrestrial happenings. Alterations of nature manifestations, therefore, did not impress the mediæval Christians as being miracles, for, as they comprehended it, one and the same phenomenon of nature could occur in one way to-day, and in another way to-morrow, in accordance with God's pleasure. To them it was quite as incomprehensible that all manifestations of nature should be dependent on inalterable laws, uncontrolled by any mediation of the supernatural, as to-day it is inconceivable to us that God could or would at any moment set aside a law of nature to benefit one or another of us mortals. For that reason the priests and laymen of eras rife in the belief of medical miracles cannot be judged by the standards which we apply to-day to those who still believe in the occurrence of medico-scientific wonders.

Owing to the conditions then prevailing, many a Christian monk or priest may have vacillated between the demands of faith and those made upon him by his medical enlightenment. That the pillars of the church were not exempt from such frailty is shown by the case of Gregory of Tours, who, as previously mentioned, endeavored to cure the ills of the body not only with remedies supplied by the grace of God, but also with medicaments of the professional pharmacy. Certainly in an era characterized by credulity and faith in miracles the dominant belief in God's interventional powers made any opposition to belief in them exceedingly different from what it is to-day. It may well be, therefore, that many an enlightened monk or priest, weary of combating the people's thirst for celestial medicine, sacrificed his scientific convictions to the fantasies of over-wrought faith.

Some consideration, therefore, may be due to the attitude of monks and priests of the Middle Ages, but there is not the slightest excuse for the present day zealots who advocate miracle, faith, and prayer cures. This is true especially because medical knowledge, the appreciation of the natural laws which govern the production and

cure of disease, has become so complete and exact that ignorance, which has been so well called the culture medium of faith, can no longer be professed. When it is recalled that Hippocrates, notwithstanding the comparative deficiency of his medical knowledge, declared his opposition to the assumption that God himself, unhampered by natural laws, regulated all terrestrial manifestations, how is it possible for any person of intelligence to contend to-day, simply because of our inability to control many processes of disease, that there are enigmatical powers which can make us sick or well, according to wish and will?

It is comprehensible that people should have appealed to the "unknown God" for help in all afflictions of the body at a time when, through ignorance, they believed themselves at the mercy of all kinds of unknown powers. But to-day, as we are able to recognize the origin and foretell the course of almost every disease and as we have at our command adequate natural remedies, there certainly can be no reason for having recourse to supernatural aid. The truth of that is all the more evident because our knowledge of pathogenesis and therapeutics, as well as of preventive

medicine, is daily increasing and becoming more trustworthy.

Stress also must be laid on the fact that, in this century of mechanico-physical conception of the laws of nature, when all scientific knowledge quickly becomes assimilated by the mass of the people, the question of making concessions to popular belief is not involved. Popular belief to-day does not look for the production of miracles. Nevertheless we observe daily, not only among the less cultured in smaller villages, but also among the enlightened and usually incredulous people of our large cities, that Christian Science is winning enthusiastic supporters. Can this deplorable fact be attributed to anything but a misguided religious sentiment?

Many instructive instances from most recent times might be adduced to demonstrate the extremes to which an over-wrought religious feeling, lacking in the counterpoise which a mechanico-physical conception of nature gives, may lead. Typical examples are Mrs. Eddy's Christian Science, John Alexander Dowie's Christian General Church in Zion, and the Emmanuel Movement.

The system of Mrs. Eddy, an absurd jumble

of undigested scraps of philosophy, of distorted medical observations and of crass errors of judgment, is based on the belief that disease has no material basis, but is due entirely to certain states of mind. This conception, which has been borrowed from a natural philosophy long ago discarded, makes the employment of physicians and medicines superfluous, the treatment of the sick being assigned to persons able to teach the patient how to concentrate his mind upon the spiritual or God-like principle which dwells within him.

Mrs. Mary Baker Patterson, afterward Mrs. Eddy, after having had a wondrous vision, which later "proved to be God-given by healing the lame and the blind and by raising the dying," verified her vision because, proceeding in accordance with it, she said, she had "prevented disease, preserved and restored health, healed chronic as well as acute ailments in their severest forms, elongated shortened limbs, relaxed rigid muscles, restored decaying bones to a healthy condition, brought back the lost substances of the lungs and caused them to resume their proper functions."

Eddyism contains several so-called maxims from which the student is not allowed to depart. These

fundamental propositions are: God is all in all, God is Mind, God is good; therefore, as God is all in all and there is nothing but God, or Mind, and if God is good, there can be nothing which is not good. As God is good, He does not wish His creatures to suffer, and, as suffering is not dependent on Mind, *i. e.*, God, but on matter, therefore it can arise only through sin. Only when matter has gained control of mind through sin can the suffering of matter be transmitted to the mind. Cure, therefore, can consist only in mind regaining sovereignty over matter. This ascendancy of mind over matter, or re-union with God, which had been disturbed through sin, can be re-established through prayer. Then mind, the only reality, conquers matter, which has no reality, but exists merely in our imaginations. All our suffering is at an end when mind has emancipated itself from the false notion of the reality of matter and its dependent ills.

These absurd propositions, devoid of the least semblance of science, are noteworthy in that they mark the line of contrast between Christian Science and other systems of faith and prayer cures. All the other systems furnish more or less evidence

of belief in the existence of disease as a punishment for our sins, and as a divine visitation for our moral elevation, but in Christian Science that conception is entirely absent. The reality of suffering being in no way recognized, disease can serve no ethical purpose.

That any person ignorant of the laws of reasoning and unburdened by knowledge of the positive facts should produce matter so confused and unrelated as does Mrs. Eddy in Christian Science should cause us no astonishment. History shows that at all times people of all classes have devised and expounded nonsense of the most intricate kind. That the view of Mrs. Eddy should have found support among people of all grades of intelligence to so great an extent that governing bodies felt themselves called on to intervene, and this at a time when the progress of the natural sciences must have forced some light into even the dullest brain, is probably the most interesting point in connection with the entire subject. In a critical review of the Eddy system, Magnus says the historian really should be astonished by nothing, for, no matter in what field he conducts his investigations, he will again and again find human stupidity and igno-

rance constituting a power superior to cultural factors of every kind. A discussion of the details of the Eddy system at great length will be unnecessary; only two points are worth special consideration.

First we would note that there is no difference of moment between the miracle cures of the Middle Ages and Christian Science. In the former it was the saints who restored the sick to health, but they did so not through any superior qualifications of their own, but through miraculous gifts bestowed on them directly by God. They were mere intermediaries between the patient and God, through whose omnipotence was caused sickness or health, according to His will. Mrs. Eddy, on the contrary, scorns such intermediation and advises her adherents to appeal directly to God Himself. In one way or another it is made to appear that any aid which comes to a sufferer is superhuman, supernatural, even in those instances where it must be perfectly obvious recovery is certain through entirely natural means.

Secondly, we cannot refrain from reiterating what Mary Platt Parmele wisely says, that Christian Science is neither Christian nor science. After all we have said, no demonstration is needed

to prove that it is not a science, and that it and science have nothing in common. Science is the recognition and explanation of facts in nature and history. Since Eddyism disdains to give any consideration to facts, even to those induced from experience, but bases its doctrines entirely on sentiment and fantasy, it proves itself to be the pure product of an imagination led astray by the misinterpreted readings of its originator.

But, some one may say, at least this system must be recognized as Christian. Certainly not! For one may be a devout Christian without expecting God to reverse or annul the order of nature.

If it be assumed God is the Creator and Maintainer of all things, it must follow that all physical and chemical remedies are of His giving. It may not be inconsistent with the religious sentiment of the present day to believe that, in certain conditions, God might interfere with the methodical course of nature,—that is to say, might perform a miracle,—but it cannot be consistent with sound religious sentiment to assume that He would grant such supernatural aid when we are able to help ourselves by means of natural remedies. Is it not disrespect to the Maker of all if one declines to employ

the remedies at his disposal in order to rely on the supernatural? There is nothing which to-day justifies the belief, pardonable in an era of ignorance, that the physical welfare of each individual is guarded day and night by the Creator of all. If for no other reason, that assumption is refuted by the fact that in all times humanity has been dependent on itself in its battle against disease and pestilence and has had to learn how to protect itself against such afflictions. Inasmuch as Christian Science refuses to recognize the self-aid which natural forces place at our disposal in sickness, this "science" certainly can lay no valid claim to the designation "Christian."

The same must be said of John Alexander Dowie's Christian General Church in Zion. Dowie, it is true, must be judged from a stand-point different from the one applied to Mrs. Eddy. He is in accord with her only in the complete rejection of all professional medical treatment, whether by means of drugs or surgical intervention. But he and she arrived at this conclusion in entirely different ways. A faith pathetic in its artlessness led him to accept literally all the expressions in the Old and the New Testament. Because the Book

of Exodus, Chapter XV, verse 26, expressly says, "For I am the Lord that healeth thee," and because in the Epistle of James, Chapter V, verses 14–16, prayer is recommended as the best cure for disease, Dowie decides to employ prayer alone in the treatment of all forms of physical disorder. Even in surgical cases he supposes prayer to be more efficacious than the surgeon's art. In that Dowie takes a stand not different from that of the earliest Christians. Such treatment of disease by prayer is related closely to the idea that all bodily sufferings are divine visitations, intended to impress man with God's anger. That conception of pathological processes may well be termed primeval. How ancient it is is shown by the fact it is met with among the Egyptians; in Exodus we read how the Lord visited on Pharaoh and his people all kinds of afflictions, such as pestilence, black pox, and death of the first born. This view was adopted by Christianity and in the Middle Ages developed extraordinarily in form and dimensions. Every disease which occurred in epidemic form then was looked on as a visitation, as a corrective rod which God wielded over humanity. Peter Paladin, the pious Bishop of Zealand, assures us

that the "English Sweat," that dreadful pestilence which devastated Europe five times between 1486 and 1537, was sent by God in anger at the inordinate desire of the people of that time for enjoyment and personal adornment.

Both Eddyism and Dowieism start from the assumption that disease can be cured only through re-establishment of community with God by means of prayer. Both systems seek one end, but Dowie interprets the Bible text literally, while Mrs. Eddy combines it with all sorts of fantastic ideas from Indian philosophy, conceiving the entire physical world as an error, as existing merely in our imaginations.

Finally a word about the adherents of the so-called Emmanuel Movement. A few years ago the Rev. Dr. Worcester, of Emmanuel Church in Boston, inaugurated a movement which was brought to public notice through the daily press and other periodicals—a movement the thin disguise of which allows the features of Christian Science to be recognized easily. Still, the position of the adherents of Dr. Worcester is different from that of Mrs. Eddy in that they do not directly renounce medical treatment. They admit that organic

changes of the body cannot be cured by prayer, and therefore take the precaution to have a correct diagnosis made for them by professional physicians. Making a suitable selection of cases in that way, they leave to the doctors those patients suffering from organic disease, while those suffering exclusively from functional disorder are subjected to cure by means of prayer. This movement really originated in England several years ago, but did not meet much success. Even here it has not grown and spread as at first it was expected to.

To recapitulate briefly: We have learned that, through psychotherapy the perception of pain may be suppressed to a certain extent, appetite and digestive functions regulated, heart action quickened or retarded. We know that, on account of the tendency of the organism to complete a process which is anticipated, hysterical paralyses, as well as certain idiosyncrasies, may be removed by means of suggestion. We also know that suggestion may be employed with success in all forms of disease which manifest themselves by functional disorder and functional symptoms. If, then, it be said it is immaterial whether these effects are produced through prayer or through psychotherapy, the reply

must be that, although, objectively considered, the result may be the same in either case, subjectively the psychotherapist works with creditable methods, while the faith and prayer curist is the victim of self-deception in that he attributes to a miraculous influence the beneficial results attained by natural means, through the power of the imagination. What is of the greatest moment, however, is the sacrifice of many lives through the renunciation of medical treatment, which is characteristic of Christian Science—lives which could have been saved had there been an opportune recognition of the organic disease which led to their extinction, and which was quite as unamenable to psychotherapy as to religious treatment.

Therein, in my opinion, rests the moral culpability and the criminal responsibility of all faith and prayer healers. They wilfully exploit a superstition, and against such procedure the sick and the infirm must be protected.

E. The Personality of the Physician

The statement of a well-known clinician that disease is cured not by the remedy but by the physician must be accepted *cum grano salis*. The

kernel of truth which it contains is that the personality of the physician exerts an extraordinary influence on the efficiency of therapeutic procedures. This is true particularly in psychotherapy, where use is made of no material remedy but of mere assertion, and where, therefore, signal confidence in the physician's powers is a prerequisite. Hence, certain qualities must be possessed by the psychotherapist which are not necessary for the practice of other branches of medicine. Above all, the practice of psychotherapy requires special preparation; absolute essentials are a theoretic knowledge of neurology and psychology, a practical knowledge of the general clinical and anatomical peculiarities, and a special knowledge of all the details of functional disorders and functional symptoms. Psychotherapy is a sub-division of neurology and psychiatry. Only the trained neurologist and the psychiatrist, therefore, are qualified to practise psychotherapy; but, because of the mutational relations which connect all branches of medicine, even they can do so with success only if they are experienced in all other branches of medicine as well. This is so, if for no other reason, because the cases most amenable to psychic treatment, the

functional ones, often do not present such pronounced symptoms as would make it possible for them to be recognized at once. An error in diagnosis between organic disease and functional disease is one to which the inexperienced physician is easily exposed; and, of course, without correct diagnosis there can be no proper treatment. Only that physician who is in constant touch with general medicine is qualified for the practice of psychotherapy; only he who is able to exclude inappropriate cases from psychic treatment will save himself and his patients from disappointment.

Since, therefore, it is certain that not every physician, no matter how efficient he may be in his own branch, will be a good psychotherapist, it must follow that certain attributes are required for the practice of psychic treatment which need not be possessed by the surgeon, the general practitioner or the specialist in any particular branch of practise. This brings us to a consideration of the most characteristic difference between the practice of psychotherapy and that of the other specialties in medicine. For the recognition of all diseases presenting distinct objective manifestations, whether these be elicited by means of percussion or auscultation, or

by microscopical, chemical, radiographic, or electrical examination, no understanding between physician and patient actually is necessary. The fact that a patient is unconscious, or is a deaf mute, or speaks a language unknown to the physician need not preclude the possibility of arriving at a correct diagnosis or instituting the proper treatment. Without having to ask a single question, the physician can recognize a pneumonia, an organic disease of the heart or the kidneys, diphtheria, fractures, dislocations, etc.

In psychotherapy, on the other hand, everything, including diagnosis and treatment, depends on a proper understanding between physician and patient. The physician must be able to follow the train of thought and the emotions of children and adults, of the cultured and the uncultured, of the rich and the poor. If their ways of thinking and feeling be strange to him, how can he gain the confidence of his patients, or elicit the frequently abstruse history of their disease, or give them proper instructions? In psychotherapy, even when combined with other forms of treatment, it is the word which counts. To secure the acceptance of this word, to effect receptive adoption of his suggestions

by patients of the most varied degrees of education and refinement, the psychotherapist, more than other physicians, must possess a high degree of knowledge of human character and vast experience of life. Stress must be laid, too, on the ethical qualification of the physician. Not only must he understand the patient, but he must feel with him. Golden words are these of Delboeuf:

"When I am with a patient, deep compassion for his sickness overcomes me. When he suffers I partake of his pains, and when he weeps it moves me to tears. Between him and me there exists a common tie. Is it not this sympathy which makes it seem, when I talk to him, as though I were talking to myself, and is it not this same sympathy which makes him believe when I am talking, that he hears himself talking? Is not this compassion the secret of those who are successful comforters in sufferings which resemble their own?"

Cold, heartless, and emotionless egotists can neither comfort nor suggest successfully. Only forceful, sensitive, impressionable natures, themselves easily influenced by the sufferings of others, are able to exert a psychotherapeutic influence. Delboeuf's view that psychotherapy presupposes

the existence of a special sort of sensibility in the physician, and that it is the patient who first acts psychically on the physician, is perfectly correct. It is a fact that the manner in which the patient acts toward the physician is quite as important a factor in successful psychic treatment as is the demeanor of the physician himself. Where there is no psychic contact, the enthusiasm, the joy in one's work, becomes toned down. Hence it is this psychic contact which plays the determining rôle in psychotherapy. Without it medicines may be administered and surgical operations performed effectively, but successful suggestions cannot be implanted. No matter how calmly the physician may listen to the exaggerated complaints of hysterical patients, he knows the exaggeration is not simulation, and the patients actually suffer even if the existence of any disorder cannot be demonstrated objectively. In his therapeutic dispensation there can be but one governing law for the physician, and that is that when a patient believes himself to be suffering, and asks for help, he actually is suffering, and needs that help.

Wherever this psychic contact evolved from sympathy, which we have designated as the most im-

portant factor in suggestive treatment, is present, it will not be difficult for the physician to extend that measure of tranquility and patience which the nature of psychotherapy demands. This very demand, in fact, makes the practice of suggestive therapeutics impossible for many physicians. Time and patience are factors of the greatest importance. To listen to the never-ending complaints of many neurasthenic and hysterical patients is always a tax on both time and patience, but he who tries to hurry his patient, he who receives these complaints restlessly, without interest, or even with a hint the complaints are foolish or imaginary, will never achieve the slightest success in this form of treatment.

Nervous, excitable persons are particularly unadapted as psychotherapists, for the ability to concentrate his thoughts is necessary not only for the patient who is to be influenced, but also for the physician who desires his suggestion to be adopted. Similarly, on the other hand, the phlegmatic person will have but slight propensity for so arduous a task as suggestive or hypnotic treatment, for his words will lack that force which is necessary to impress the truth of his assertions on the patient.

Above all, the physician must be imbued with the truth of his own statements, for then self-confidence and surety of demeanor must follow.

He who wavers and doubts his own capabilities, he who does not himself believe in the effectiveness of psychic treatment, will never gain the confidence of his patients. I cannot agree with Struempell in his contention that the psychotherapist, and especially the hypnotist, must possess dramatic talent to produce a more marked impression and to conceal his own misgivings. There should be no want of confidence, no doubt in one's self, which may need covering. Of course, it is an advantage to the physician to have a voice which is tender and agreeable. Delboeuf mentions the favorable impression which the pleasant, convincing tone of Liébault's voice made on him. But, after all, the means of expression which the physician uses, whether these be words or gestures, must harmonize with his innermost conviction. Where that harmony is wanting, the successful practice of psychic therapeutics is impossible. It would almost seem the true psychotherapist is born, not made, and yet it cannot be denied that practice and experience are essential for the development of this natural dis-

position, and for the fixation of that confidence in one's powers on which success depends. The psychotherapist who is the fortunate possessor of natural and acquired qualifications cannot fail to cull the fruits of conscientious endeavor.

F. The Personality of the Patient

Emphasis has been laid repeatedly on the fact that it is in the field of functional disorder that the most brilliant successes of psychotherapy are achieved. All affections which have been produced by psychic influence, the force of idea or imagination, may also be set aside by psychic means. The main occupation of the psychotherapist, therefore, will be the treatment of neurasthenics and hysterics. Of these, according to the opinion of the majority of writers, those most easily influenced are children and other persons who are not given to independent thought and action, or, to put it in another way, who are accustomed to obey orders promptly, and who have great respect for authority.

Still, intelligence, will power, and strength of character also constitute important factors in suggestive susceptibility. Sceptics, persons in whom

the spirit of contradiction is strong, materialists, and those who are inclined to be sarcastic, are not influenced easily. They are insistent upon explication, and they criticize or oppose any method of treatment if they do not at once appreciate its efficacy. In their cases, hypnosis is the only method worthy of trial, for this sleep-like state excludes, or at any rate curtails, the force of counteracting objections. On the other hand, idealists, enthusiasts, people who are emotional and impressionable, are most easily influenced by psychic means. This is probably the reason why, according to Obersteiner, Moll, and other authors, people who are strongly affected and emotionally excited by music are good hypnotic subjects.

Real insanities, as we have seen, cannot be beneficially influenced by means of psychic treatment. *A priori* it would seem that precisely that want of critical acumen which forms so great a contrast between the thoughts and feelings of the paranoiac, the paretic, etc., and those of a healthy mind would be markedly propitious for psychotherapic action. But if we remember that this lack of discrimination, dependent as it is on actual disease of the brain, cannot be corrected so long as the tissue

changes or circulatory conditions which are present render an orderly association of ideas impossible, this apparent contradiction, that insanity and psychotherapy are incompatible, can no longer astonish even the mind of the layman. Ideas of grandeur, hallucinations, etc., when once fixed in the brain, are more powerful than the word of the psychotherapist, and the critical indiscrimination which arises through an unordered association of ideas cannot be corrected through a discrimination which is dependent on an orderly association of those same ideas.

Psychotherapy addresses itself to personalities. The personality of the patient represents an entity which cannot be divided into parts. When a patient seeks medical aid he is not able to analyze his disordered sensations to such an extent as to make him willing to have only those symptoms which are of functional origin removed by psychotherapy. What he asks of the psychotherapist is freedom from all his troubles, even those which grow out of organic changes. We have seen that, although psychic treatment cannot directly influence organic disease, a therapeutic effect may be produced by psychic reinforcement of a patient's confidence in

the potency of medicinal or other remedies. In a way, therefore, the patient's hope for relief is not unwarranted, for it cannot be denied that, together with the disappearance of certain symptoms which to a large degree react perniciously on the nervous system, the general condition becomes markedly improved. He who has learned that no better remedy exists for stimulating the digestion, for regulating the movements of the bowels, for inciting the appetite, for influencing the heart's action, than the power of suggestion supported by the authority of the physician, is bound to come to the conclusion this power must be of potent advantage to the entire personality of the patient, and that by means of the combined method of treatment associating the employment of psychotherapy and medicinal or mechanical remedies, the patient will at one and the same time receive both specific and general help.

True, it is not always evident, then, which has been the active factor—suggestion alone, or the enhanced belief in the potency of the other treatment. This, however, cannot be of great significance so long as it is recognized that therapeutic suggestion is of itself capable of prolonging an al-

teration in a person's physical condition. The physician's supreme law must be his patient's weal; how the good is accomplished is of secondary importance and it can be of no consequence whether the patient himself can or cannot distinguish the benefits derived through therapeutic suggestion from those produced by other means. Even should those material remedies which support the action of psychotherapy be inactive of themselves, they are nevertheless worthy of employment because of their opportuneness. It is a foible of human nature which assures the acceptance of concrete things with greater readiness than of mere assertions, and this trait must not be disregarded by the physician in his employment of the combined method of treatment. Even a person of strong character will be more inclined to look forward to the occurrence of certain changes in his condition if the assertion of the physician be reinforced by the simultaneous use of remedies which have a material influence on the patient. The physician cannot dissect the personality of a patient in such a way as to influence the mind to combat functional disorders and symptoms and at the same time to ignore the treatment of organic changes which may exist.

In the one case as well as in the other, whether directly or indirectly, the state of mind of the patient exerts an influence upon the cure. The personality of the patient, in fact, is the most important basis for the individualization of psychotherapy.

The routine practice of medicine is always to be condemned because in various persons special conditions will cause the same disease to take different courses and, therefore, will demand different treatment. But in the exercise of psychotherapy, a consideration of the individual characteristics of a patient is of decisive importance. It should be remembered above all else that personality or character is by no means a fixed entity. People whose characters are unchanging and unalterable under all conditions and in all phases of their development certainly are exceptional. It may safely be maintained that the characters of most persons are subject to many fluctuations as a result of stress and other external conditions, and that pain and suffering seem to alter entirely the personality of an individual.

In his most excellent dissertation on the "Relation of Character Formation to Psychotherapy," Putnam says:

"A person's character is not always just the same—each phase of a multiple personality has its own character, and these phases reappear as *quasi* normal moods. The severe test of illness sometimes develops forms of character that might otherwise have remained undeveloped. Within the orbit of the invalid selfishness sometimes reigns, and narrow egotism, together with sentimentality, ignorance, and weakness of will, and these tendencies may remain active long enough to make themselves felt through modifications of the character. But,—what is more important for our purposes,—unselfishness, devotion, willing sacrifice of ambitions and desires, thoughtfulness, persistent effort, loyalty, the sense of service, may likewise be manifested here in their best form. The invalid may make excursions into certain realms which are rarely open to the well and the strong."

This emotional variation, these fluctuations of character and personality, may be of little significance for medicotherapy or surgical intervention. But, for the psychotherapist, who must exert an influence mainly by words, if not through words alone, due consideration of the mentality, of the psychic constitution of his patient, and of the appro-

priate manner and ways in which his suggestions are to be imparted, are of the greatest importance. No physician of discrimination will speak to a patient who is extremely depressed in the same manner as he would to one who is capricious and obstinate. Such individualization is called for particularly in those patients who at different times manifest the crass contradictions which are concomitant with dissociated consciousness and alternating personality.

The chapter on "Peculiarities of Mental Activity" has shown the differences which exist in the minds of the child and the adult, of man and of woman, etc. If, then, the abrupt fluctuations of character and emotions of each individual are problems which make serious demands on the tact and the wisdom of the psychotherapist, how much greater will these demands be when the problem confronting him is the effective adaptation of his procedure to the understanding of different personalities! His capability for considering individual peculiarities, for weighing conscientiously the methods of action under certain given conditions, and for the adoption of a proper method, will be the surest demonstration of his efficiency. Bernheim's statement that

he never has been able to exert any psychotherapeutic influence on children whose reasoning powers have not yet been developed, must be unqualifiedly endorsed. All suggestion must be adapted to the intellect, to the powers of comprehension of an individual. Hence, suggestion for the very young and for people of but little culture must be conveyed in the most simple words. On the other hand, an intellect which is mature, or a personality of strong and independent judgment, will not be swayed so easily by mere commands, unaccompanied by explanations of the reasons and the expediency of a procedure. Thus ample scope is given to the physician for demonstration of his powers of individualization.

Liébault states that his mere assertion that such would be the case, caused certain peasants who were mentally healthy, but thoroughly unsophisticated, to behold the Virgin Mother. Had he been dealing with more sceptical personalities this surely would have been an impossibility. A patient who, because of his poverty drank only water, received from Liébault the suggestion that for two days at Easter all water would be converted at meals into red wine, and the concentration of expectation

developed by this ignorant person actually caused him to believe this miracle had taken place. Liébault tells of another peasant who often heard it said that any person going into a meadow by a certain specified path would be unable to leave it. The peasant one day went into this field, but no sooner had he done so than he conceived the idea he was using the bewitched path, and so dominated was he by the delusion of his inability to get out of the meadow that he had to be removed by force.

Charcot says he has sent patients suffering from hysterical palsy or contracture, whom he had been unable to relieve through suggestion, to places of pilgrimage, and on their return he was able to verify the fact of their cure.

Effects which can be attained without difficulty in persons of deep religious nature, cannot of course be brought about through similar means in those who are agnostically or atheistically inclined. In order that similar results may be derived from similar causes, as, for example, the removal of hysterical paralysis in different individuals by means of suggestion, the conditions for cure must be the same. In psychotherapy these conditions are not made up, as in medicinal therapy, of chem-

ical affinities, or, as in surgery, of antisepsis and asepsis, but are formed essentially by the personality of the patient and by the sphere of ideas which control him. These facts enable us to deduce the very important principle that the decisive indication for psychotherapeutic influence is given not by the perceptional powers of the physician, but by those of the patient. That physician who would undertake to counteract similar functional disorders in different patients by suggestions of a similar kind, without regard for the thoughts, the character, and the emotions of the patient, would in so doing give the surest proof of his own incapability. He should know that sceptics and persons of critical discernment will be entirely refractory to certain ideas, which would be accepted unquestioningly by children, by the uneducated, and by devout believers.

The treatment of hysterical women is often most difficult. As we have seen, the psychotherapist must combat the disorders of his patients from within the circle of their own ideas. Man, however, is but rarely able to comprehend the mental life of woman, which is so different from his own; when confronted with the labyrinth of female

emotions his wisdom soon fades away. For that reason the psychic treatment of female hysterics often is attended by failure when, *a priori*, success would be expected.

May these few examples suffice to show how important for the success of psychotherapy is the personality of the patient, as well as the ability of the physician to place himself within the circle of the patient's mental life. No suggestion can be effective if it be not adapted to the powers of comprehension of the patient, if it be not linked to the chain of the patient's ideas. Individualization is the shoal on which the art of many an otherwise experienced physician suffers shipwreck.

II. SPECIAL APPLICATION OF PSYCHOTHERAPY

A. The Most Important Methods

The methods of cure employed by the mystics having been amply characterized as being in part delusive, in part wilful imposture, we are relieved from any further discussion concerning them. Here we will limit ourselves to an explanation of those methods of psychotherapy which have a recognized scientific basis. In so doing a distinction must be made between preventive and curative treatment

1. MENTAL THERAPEUTICS

Psychotherapy makes use of suggestion above all else,—that is to say, it annuls functional disorders and symptoms based on fallacious ideas by arousing opposing ideas, the effectiveness of which is dependent on the individual's inherent disposition for psychic influence. Whether hypnosis should be employed to augment that susceptibility to suggestion can be determined only by the

conditions in each individual instance. Although the opinion that every hypnosis constitutes an artificially produced hysteria is one which we do not share, the fact remains that the hypnotic state certainly is a pathological one. If for no other reason than that, hypnosis, as an aid to suggestion, should be employed only when the inefficacy of all other means has been demonstrated. The number of such instances will be found extremely small by the psychotherapist who is as authoritative and as conversant with his specialty as he should be. In all cases, too, due weight should be given to the fact that the active curative agent is never the hypnosis, but always the suggestion which is implanted during the hypnotic state.

Catharsis, another psychotherapeutic method, differing from suggestion treatment, has gained recognition during the last few years. The aim of treatment by suggestion is essentially an abolition of disordered ideas, the determination of their cause being considered of little importance. The newer method, however, endeavors primarily to trace the disordered ideas to their source by means of psycho-analysis. The question asked in applying suggestion treatment is, "How can the obsess-

ing ideas which weigh upon the mind be annulled?" The first question to be asked under the psycho-analytic method, however, is, "How have these obsessions arisen?"

Aristotle regarded the Greek educational idea of catharsis, that is, the purging of the mind of inharmonious and disordered emotions, as the main end of the fine arts, and in particular assigned to the drama the catharsis of pity and terror as its chief function. The sound basis for this doctrine of thus disburdening the mind is made plain by the common experience of relief obtained by giving vent to excitement, and of distress which is caused by forced repression of harrowing emotions.

The psycho-analytic method assumes the functional disorders of hysterics and neurasthenics or psychasthenics to be attributable in great part to some marked emotional stress, frequently one of early childhood which was repressed at the time it arose and could not be thrown off afterward. The original stress may be forgotten but the morbid feelings and the bodily disorders which they cause continue to persist. Psycho-analysis aims to recall to mind the causative emotional excitation and, by exciting the patient to a confession, to

give him an opportunity to free himself and thus to obtain that relief which we know always accompanies all unhampered expression of thought. The repressed emotions having been discharged, the patient's mind having been unburdened, all symptoms resulting from the repression pass away.

The method of treatment by psycho-analysis received much attention from Sigmund Freud, whose name we have mentioned in the chapter on dreams. Breuer, however, and not Freud, is the originator of this cathartic method, which has met with much just criticism but which contains so much of interest that we cannot refrain from giving more details concerning it.

A female patient in a state of mental aberration was observed by Breuer to be muttering words which apparently were fragments of a subconscious train of thought. This patient was hypnotized, and the words which she had spoken were recited by Breuer. Little by little, through thought association, he was able to revive in her distressing recollections of childhood which seemed to have passed from her waking consciousness. When a number of such recollections had been revived and expressed, she appeared relieved and restored to a

normal mental state; after a time her feeling of relief was supplanted by another aberration, which was removed in the same way. Only after the patient had given vent to all her distressing reminiscences was complete and permanent cure attained. While thus treating this patient, Breuer learned in a disconnected way of severe emotional excitement which had occurred years before and which she had been obliged to repress in consideration of her father's fatal illness. Nearly all the symptoms of her subsequent sickness represented, as it were, a sediment of those distressing experiences, a consequence of the stimulus produced through those emotions, which, having merely been repressed, had lain dormant in her subconsciousness during all that time. The undischarged emotions continued to persist in part as a permanent taint of mental life and a source of apprehensive unrest, and in part had been transformed into expressional movements, which in this case constituted the symptoms of disease. At one time, when a glass of water was offered to her after she had complained of thirst, she gave vent to an expression of repugnance and refused to drink, but she did not volunteer an explanation for her strange behavior. Later, in

hypnosis, she said she once had seen a dog drink from a glass, but through consideration for the animal's owner she was obliged to repress her feeling of disgust. A noteworthy point in the history of this case is the circumstance that a feeling of relief followed the hypnotic disclosures only when they were accompanied by outward evidences of emotion, while the revival in consciousness of a distressing experience, when unaccompanied by such disburdenment, left all the symptoms of disease unaltered; the repressed and pent-up emotions, in fact, remained as a source of suffering until at some opportune moment they found an outlet through an "explosion" of more or less intensity.

This case corroborates the statement previously made that a train of thought brought to light through hypnosis consists essentially of memory images, and not of new ideas suddenly acquired in some mysterious manner. The memory pictures remain in subconscious abeyance simply because the subservient thought associations are not stimulated. As we have seen, one word or another, used at the proper moment, will suffice, by means of stimulation of association fibres, to arouse the latent images to full activity. Complete loss of remembrance

can take place only where association fibres have been disconnected or where the nerve elements in which the memory pictures were stored have been destroyed.

Breuer's method of cure through catharsis, the production of a discharge of the pent-up emotions which were the original cause of the existing trouble, has been not only elaborated, but also, in so far as he rejects the use of hypnosis, modified by Freud. The latter obtains concentration of the patient's thoughts upon his inner life through exclusion of all distracting sensory stimuli. Then, laying his hand on the patient's forehead, he asks him to search for memories apparently lost, and perhaps reaching back into early childhood. He does not regard it as necessary to use hypnosis to eliminate resistance on the part of the patient, but considers it sufficient to assure him positively that he will remember. These memory explorations are aided by Freud through employment of the association law, by mentioning or writing certain words and requesting the patient to mention other words directly related. For instance, the word "ship," through thought association, leads to the words "water," "harbor," "sea-sickness," etc. The re-

sponse is unhesitating and quick where inconsequential matters are concerned. A deliberate, carefully studied answer shows that a sore point, one which the patient tends to cover, has been touched. To overcome such resistance and hesitancy requires much tact and ability on the part of the investigator, and success can be attained only where the full confidence of the patient has been won.

The psychotherapist's task is made still more difficult through Freud's assumption that all symptoms of hysteria have their inception in the sexual sphere—more particularly in unrequited love or in unsatisfied erotic desires. Among the cases described by Freud is the following:

A cultured, elderly unmarried woman presented all symptoms of severe hysteria. Through psychoanalysis there was obtained, little by little, a confession that she had loved a man who subsequently married her sister. At the sister's death, which soon followed, a desire forced itself upon her that her brother-in-law, now free, would marry her. This wish, unworthy of her moral thought and training, was forcibly repressed. The result of this repression was a manifestation of hysterical

symptoms which represented, as it were, a bodily equivalent of the undischarged psychic injury that continued to persist long after the primary emotional excitement had faded away.

In another case, also involving an elderly spinster, the patient accused herself of crimes of all sorts whenever similar happenings were the topics of conversation or newspaper notices. As a result of careful interrogation, Freud ascertained that these obsessions had arisen in consequence of sexual aberrations which followed a disappointment in love. Both those patients recovered through the use of catharsis.

We are quite ready to believe Freud's statement that, owing to the delicate nature of the emotions which originally gave rise to the hysterical symptoms in those cases, a confession could be obtained only with great difficulty, but we are not so willing to adopt his generalization that the more pronounced the primary repugnance to confession may be in consequence of modesty, the greater will be the subsequent disburdenment and the more complete the recovery.

As we have seen, the course pursued in psychoanalytic treatment is quite different from that

followed in suggestion therapeutics. The latter, Freud says, has given him not one permanent success, and he adds that symptoms only have been temporarily obscured thereby. We can easily understand the astonishment of Breuer and Freud following their discovery that symptoms of disease disappear permanently as soon as those painful experiences which have given rise to bodily disorders are recalled to the patient's mind and the patient has been induced to give vent to the emotional processes originally repressed.

Whether suggestion therapy, the aim of which is to combat hysterical and neurasthenic obsessions by arousing healthy antagonistic ideas, has met a rival in this therapeutic method of psycho-analysis must remain a mooted question, in regard to which the unprejudiced critic cannot but have serious and warranted doubts. In our opinion the very basis on which this method is founded, the explanation given by the authors for the origin of hysteria, is unsatisfactory. Every one at some time or other is obliged forcibly to repress certain emotions and to prevent them from becoming manifest. That, in persons of strong will power, accustomed to self-discipline, will cause no ill effect, but where persons

become hysterical as a result of such repression it is a sign that they already have had an unstable nervous system and would have developed hysteria not only in consequence of disappointment in love and unsatisfied erotic wants, but quite as easily from any other emotional disturbance. Therefore, distressing experiences of a sexual character must not be looked on as the sole factor in the production of hysteria, particularly because, as Dercum very correctly maintains, hysteria is encountered in very young children and in very old people, in whom there can be no question of sexual aberrations.

Freud undoubtedly has overestimated the significance of distressing erotic experiences in the production of hysteria. While one person will undergo such experiences and remain healthy, another who does not have them will become a hysteric after fright or any other psychic shock, essentially in consequence of his lowered powers of nerve resistance. Freud was misled into unwarranted generalizations by the accidental discovery through psycho-analysis of the existence of a sexual causative factor in the hysteria of many of his patients. The errors into which he has fallen are

quite manifest, and there can be no doubt that in many of his patients he has, through the questions asked during his memory explorations, suggested matters which previously had been foreign to the patient's mental processes. Thus one woman, having confessed to Freud certain sexual errors of youth, subsequently admitted to Loewenfeld that those excesses never had taken place. There can be no doubt that the mode of applying this method is one which will easily convey suggestions to the patient though they are unintended by the physician. This fact would also explain the uniformity of results which Freud and his school are obtaining.

Emotional shocks sufficiently violent to produce hysteria usually are graven deeply upon the memory, and hardly ever are forgotten to such an extent that they can be resurrected from subconsciousness only by means of an arduous psycho-analytic procedure. With that statement, however, we do not by any means deny the possibility of a disappearance from memory of an emotional occurrence while the secondary bodily disorder caused by it continues to persist. It is also very possible the patient may always retain consciousness of the disturbing experiences through which he has passed,

but carefully conceals them. Such persons merely refrain from acknowledging what they think would lower them in another's estimation. Were this not so, we could not understand why they do not bring about catharsis through confession without the aid of a physician and thus rid themselves of their distress.

A final argument against the practicability of the psycho-analytic method of treatment is the amount of time which its exercise requires. The length of each single sitting necessarily is great, for nothing can be done until the patient has attained proper emotional composure, has overcome any existing depression or confusion, and manifests the necessary interest in the interview; even then he unfolds reminiscences of painful nature only piecemeal, so that, as Freud himself says, three years may pass before a complete recovery is established. That psycho-analysis, under such conditions, should supplant suggestion as a therapeutic method seems hardly credible, and that the newer method will in course of time be modified and made more practicable seems doubtful.

Mention must be made here of the fact that Freud believes dreams to have a certain influence

upon the production of functional nervous disorders. For this reason he endeavors by means of psycho-analysis to recall to memory the dream experience which has been dislodged into co-consciousness and to incite the patient to free expression of words. As Dercum very justly remarks, the same grounds upon which psycho-analysis has been opposed are applicable to dream analysis and to the rôle of a psychotherapeutic factor which is attributed to it by Freud. Although justification is wanting for attributing the causation of functional nervous disorders to dream experiences, unless perhaps it be those dream experiences which are the product of an already diseased nervous system, Freud again falls into an error in considering all dream experience without exception to relate to erotic matters. Certainly this view is often correct, especially in relation to young people, but Freud's generalization assuredly is no more than a gross exaggeration. Furthermore, as we have already seen, the psycho-analytic method also will suggest dream experiences which actually have never taken place and consequently could not have been the cause of the functional nervous disorder that exists.

A third psychotherapeutic method consists in the

proper apportionment of mental rest and exercise. Inasmuch, however, as the word "rest" indicates a cessation of activity, which cannot be attained during the waking state, the word "relaxation" seems better to convey the meaning we have in mind.

Mental relaxation and exercise comprise not only direct suggestive influence, but also those factors which usually are termed educational. The necessity for relaxation and exercise is proved by the fact that the functional capability of every organ suffers through inactivity as much as through overactivity. An organ wastes away when it is not called into action at all, just as surely as it wastes away when excessive demands are made on it. Moreover, this applies quite as much to the brain, the organ of the mind, as it does to the muscles and the other organs of the body.

By relaxation of an organ is meant the relieving of that organ, so far as possible, of the part which it takes in the operations of the general organism, and the facilitation of those activities of which it cannot be relieved. We therefore endeavor to put the entire body in a state which will make as few demands as possible on the affected organ, and that only under conditions as favorable to that organ as

they can be made. By exercise, on the other hand, we understand all those means which will cause an organ to accomplish more than it has previously, the increased activity, however, not being the result of a single output of energy due to strong stimuli, but an evidence of permanently augmented effectiveness. In that permanent effectiveness lies the difference between increased activity due to stimulation and that caused by exercise or training. A sharp dividing line does not exist, since stimulation of an organ naturally will cause an exercise of function. Different individuals react differently to the same kind of stimulation; the stimulus which is physiological for one person may be pathological for another. All exercise produces fatigue and thus necessitates recuperation. When recuperation takes place in a perfect manner, the organ exerted has become slightly more capable than it was at first; but if recuperation has been inadequate, the organ has been weakened, and not strengthened, through the exertion. To find the happy mean, to regulate exercise according to individual requirements, is a task which the physician can accomplish only if he has the proper appreciation of the patient's varying powers of adjustment.

Application of the principles which govern relaxation and exercise of those bodily organs whose healthy functioning produces healthy mental action must be regulated by regard for the intimate connections which exist between brain, spinal cord, and peripheral nerves. Not one of these can be treated individually. Relaxation and exercise of the brain react upon the rest of the nervous system, just as relaxation and exercise of spinal centres and peripheral nerves react upon the brain. This interaction of the various parts of the nervous system takes place, as we have seen in the paragraph on reflex excitability, according to well-defined laws. It is true this has been proved with certainty only in relation to the transmission of sensory stimuli to motor nerves, but enough observations indicating interaction between the central and peripheral parts of the nervous system exist to warrant fully the conclusion that action on one part of the nervous system influences the entire system. The attempt artificially to divide the nervous system into brain, spinal cord, and peripheral nerves for the purpose of treating a single part, the functional disturbance of which for the time being dominates the entire clinical picture of disease without acting

on other parts, is therefore inadmissible, because practically it cannot be a success.

In a book on psychotherapy stress naturally must be laid on psychic treatment, and the supporting curative factors can only be considered incidentally. That restriction should be kept in mind in the reading of the following paragraphs.

As stated, relaxation does not mean rest, for complete rest and inactivity of the nervous system is impossible; a certain activity is a vital condition of the organism. An especially important form of relaxation is sleep. This, as Hoffmann pertinently says, is the form of relaxation which nature itself demands, and by means of which the brain always becomes rejuvenated. Sleep is of more importance than food. We may do without nourishment for weeks, but only a few days of sleeplessness will lead to exhaustion. Numerous experiments, especially those made on young dogs, have proven this to be a fact. Sleeplessness, as is well known, is one of the most common and most distressing symptoms of many diseases. It may be shown by statistics that many suicides and attempted suicides are the result of sleeplessness, together with the exhaustion which accompanies it.

Depth and fastness of sleep may be demonstrated graphically. Following Fechner's proposal to take the intensity of the sensory stimulus required to awaken a person as the gauge of intensity of that person's sleep, Kohlschütter has devised a means through which the sound impressions used for such an awakening are registered in the form of a curve upon a plate. The sound is produced by a pendulum striking with varying force on a plate, causing tones of corresponding intensity. These experiments of Kohlschütter permit us to recognize a typical "neurasthenic curve" which shows that neurasthenics often awaken too early in the morning—in other words, their sleep is interrupted by the slightest sound and they are refreshed for the duties of the coming day only when they obtain a second period of sleep.

A conscientious physician will not combat sleeplessness by the mere administration of narcotics, which always have more or less deleterious associated action, but will endeavor to ascertain the causes of the insomnia and, if possible, to remove them. Those causes, when functional in character, will be found mainly to be hyperæmia of the brain due particularly to active and manifold interests,

disturbing sensory impressions, and a direct obsession, the fear of being unable to sleep. In such cases, too, suggestion, aided perhaps by the exclusion of all sensory stimuli through plugging the ears and covering the eyes, is an excellent means for the relief of sleeplessness and the exhaustion which follows. Frequently that exhaustion alone furnishes the soil for the development of neurasthenic disorders. Besides actual mental disorder, we often find that overstrain, worry, speculation, domestic troubles, etc., cause business men, officials in responsible positions, and physical workers to break down from exhaustion and render them unable longer to fulfil, through exercise of will power, the duties devolving on them.

In such cases mental repose must be brought about not only through sleep at night, but through relaxation of the entire nervous system by day. Even when no symptoms of excitation or paralysis are present, but when character and emotions alone seem altered, a certain laxness and diminished energy exist, weakness of memory manifests itself, the indication or urgent need for relaxation is given, and the necessity for complete change from customary life and activity becomes apparent. Patients

so afflicted must have rest; that is the fundamental requisite for recovery. But they also require diversion, and that can be obtained only in altered surroundings in which nothing will remind them of their troubles and worries. The new impressions which they receive act in the form of suggestion therapy on the disturbing obsessions, which disappear under the influence of brain repose as soon as exhaustion has been overcome and weakness of will has given way to renewed self-confidence.

This brings us to the question of mental exercise as a therapeutic factor. All in all, it may be stated as a rule that treatment should begin in accordance with the principles of relaxation, and subsequently there should be added exercise in accordance with the opinion which observation has justified in regard to the patient's powers of resistance.

As already mentioned, perimetric examination furnishes a reliable gauge for estimating the progress achieved through psychotherapy, for this test of the visual field permits recognition of the existing degree of brain fatigue. Under normal conditions the visual field of a rested brain has a certain defined compass, which becomes restricted in

proportion to the augmenting of fatigue. The rapidity with which such restriction takes place, when compared with the time previously noted as being required to produce the same result under similar conditions and like demands on brain activity, furnishes a measure of the constancy or inconstancy, the increase or decrease of brain fatigue. Certainly this graphic method is more exact than any form of intellectual test.

Mental exercise, not improperly termed brain gymnastics, will be employed in a different manner for therapeutic purposes, of course, from that appropriate to discipline in health. When our object is the restoration of patients to former mental capabilities, enforced activity, which might be borne by a healthy person without detriment, may cause trouble instead of being helpful. Mental training in a sick person is much more troublesome than in a healthy one, and requires a clearer understanding of the functional disturbances which are apt to occur in the course of sensory impressions and memory associations, and in the sphere of the emotions and the will. Then, too, the pedagogue not medically trained often errs in enforcing exercise where repose or relaxation should have been advised.

Good and quick results are sought in order to show startling progress, but the reverse is attained. Exercise and relaxation must go hand in hand with correct judgment. Even the physician can determine only by much practice and long experience when the one and when the other is to be employed, when memory and intellect or when emotions and will are to be influenced the more. That well-planned mental exercise can correct functional disturbances, can retrieve lost powers of action, is shown not only by certain aphasics who, through re-education of the other side of the brain, have again learned to talk, but also by those neurasthenics and hysterics who, through psychotherapy, have gradually subjugated their obsessions and "imaginary," though none the less painful, sufferings through strengthening of their wills.

As we already have intimated, psychotherapeutic success often is not attained, merely because the physician or educator fails to individualize, to adapt his method to the specific case. It is a great mistake, as Heller justly says, to employ a certain method without considering the psychic changes in comportment which take place in the course of the treatment. Far too little attention

may be given to the manifold psychic changes to which the patient is subject and to the fact that the progress obtained by means of relaxation and exercise does not always correspond to that methodical gradation which the physician or educator has planned for. Not infrequently a patient will react to psychic impressions in a manner different from what analogy to a former similar experience would lead one to expect. Then it is that the physician or educator can demonstrate his capabilities by modifying his method according to the varying reaction powers of one and the same or of different individuals, without ever losing sight of the object of his work. He who lacks the requisite persistency to await the effect of methodical mental relaxation and exercise is likely to become disheartened by the absence of expected results, to have recourse to newer and newer methods, and then to achieve nothing more than the production of disturbing complications which lead far from the desired purpose.

These considerations admit of but one deduction —that institutions conducted and supervised by physicians of specialized training constitute the proper place for the application of such methodical

relaxation and exercise of the brain and the nervous system. Patients in such institutions are freed from all injurious influences such as errors in training, noxious suggestions, inappropriate literature, and other things which permit nervous disorders to thrive. Furthermore, such sanatoriums, a number of which have been in existence for many years, particularly those in Germany, are equipped with all psychotherapeutic appurtenances and accessories, not the least of these being an equipment for treatment by means of exercise and occupation.

By means of work adapted to the capabilities and tendencies of the individuals and allotted in accordance with the principles of relaxation and exercise, their attention is distracted from their nervous disorders; encouraged by successful labor, the patients regain self-confidence and again find pleasure in life. That alone means that much has been accomplished, but, in addition, altruistic feelings are aroused through the work which the patients voluntarily furnish in agriculture, horticulture, or craftsmanship, and which they know contributes to defraying the necessarily high cost of the institution and thus accrues to the benefit of other sufferers.

No matter how excellent the organization of such a sanatorium, no matter how great its reputation, its one aim must be to lead the patient, by means of relaxation and exercise, not only to his former condition of health, but also to a recognition of the manner in which he may successfully combat in the future the damage which is the necessary accompaniment of all industrial competition.

2. PSYCHO-PROPHYLACTIC TREATMENT

The subject-matter of the preceding chapter in part covers the ground of psycho-prophylaxis. Mental relaxation and exercise not only serve as co-operative factors in the re-establishment of functional activity of the brain and the rest of the nervous system, but also act as a remedy through which persons suffering from congenital or acquired nerve weakness become better qualified to resist threatened psychic dangers. Thus psychotherapy follows the principle which governs all other branches of therapeutics, that prevention of disease is better than cure.

The task of psycho-prophylactic treatment is essentially educational, its object being not so much the cultivation of the intellect as the forma-

tion of character and will power. Through education, says Hoffmann, is furnished the basis for enhancement of the productive capability of our most important organ, the brain.

We have learned that a person feels what he conceives if he is once convinced of the truth of his conception. Under those conditions he may feel that he is sick and pass through all the qualms of suffering, even when all organs are healthy and when he has not been exposed to an external injury or disease-producing agency. The sufferings of the neurasthenic or the hysteric represent bitter actualities even when the ideas on which they depend have no foundation in fact—that is, are purely imaginary. Hence it must be apparent that education may produce, as well as it may remove, predisposition to disease, and that the natural sciences are correct when they require education to be governed, not according to transmitted patterns, but in accordance with our comprehension of the nature of brain and nerve activity.

This is not the place for a consideration of the reasons for the persistent increase of neurasthenia. Perhaps many individuals do break down prematurely, not in consequence of any hereditary taint or

life amid specially unfavorable hygienic surroundings, but because they have been forced to exert themselves beyond the measure of human capability. Perhaps, too, such breakdown is the result of that constantly augmenting craving for self-gratification and pleasure which has permeated all social classes and which, through over-satiation, leads to a search for ever more and more pernicious means of stimulation. While both those factors may be recognized as operative causes, the explanation, in my opinion is to be sought in the inability of the average brain to adapt itself with sufficient quickness to the gigantic progress and the rapid changes which conditions of life now are undergoing. This seems to me at any rate to be the most plausible explanation for the increase of neurasthenia among those people who are dependent on their own labor for their means of subsistence. As a matter of fact, the number of weaklings is increasing; one-sided cultivation of the intellect is permitting the emotions to wither; the ethical side of character and formation of will power is becoming more and more neglected, and mastery of the lower passions is less common than ever before. Education's first duty is to counteract such palpable

evidences of degeneration. The annals of the history of civilization teach us in unmistakable terms that races as well as individuals irreparably decline when the germs of degeneration, strengthened by hereditary influences, are permitted without hindrance to proliferate.

Psycho-prophylaxis can do even more toward better fitting adolescent youth for its struggle for existence in making the interactive relations between body and mind,—more especially the reaction which the psychic state exerts on the course of bodily processes,—serve for methodical discipline of thought and imagination, emotion and will. If by that means nothing else is achieved than safeguarding the young from those dangers to which they are exposed through sexual aberrations and alcoholic excesses, much will have been accomplished.

But if, in addition, love for work and aversion to idleness can be stimulated, the fountain-head of neurasthenic and other nervous states will be blocked. The sole difficulty consists in so selecting and apportioning activity that it will become a pleasure and concord with the desires and capabilities of the individual. Wherever that purpose

is not accomplished, work becomes a source of emotional depression and nervous disorder. Much criticism has been made of strain in school as a cause of neurasthenia among children. In general it is my opinion that the exactions of an education which keeps pace with the progress of the times must grow. Although I freely admit that, through too much learning by rote, the memory is excessively burdened, I do not consider the demands made by the school excessive for a normal brain. That, however, does not apply to children who are mentally deficient, who, without exactly being abnormal, still have brains of lesser capabilities and therefore are overtaxed by the demands made on them. For them psycho-prophylaxis must endorse the establishment of special schools, a provision which is steadily growing. The instruction given in schools organized for children of average capabilities must become a source of neurasthenia for those who are mentally deficient. Moreover, the emotional depression caused by inability to compete with their comrades, together with the ridicule they are obliged to endure as a result, may and often has become a psychic detriment of grave nature. Wherever such mental deficiency is not de-

pendent on bodily abnormalities, eye-strain, adenoids or other causes easily removable, stress must be laid, in its psycho-prophylactic treatment, on relaxation and not on activity.

To impress the youthful brain with noble and beautiful thoughts is but one function of educational training. It is quite as important to regulate by means of habit the flow of ideas, the impulses of the will, and their dependent actions, so that, as an integral possession, they will fortify the personality for its battle of life. It is true the ideal, a healthy mind in a healthy body, can but rarely be fully realized, but it is better to have a healthy and efficient brain in a crippled body than a crippled mind in a normal body.

Child-training, however, is not the sole task of psycho-prophylactic treatment. Adults, too, require training—frequently more so than children. Consider, for example, those drones of wealth whose entire lives are filled with outward form and trivialities, whose lack of serious purpose makes them easy victims to the unbridled play of their imaginations. Constituting, as they do, so large a proportion of sufferers from neurasthenia and other psycho-neuroses, they teach us particularly that in-

ordinate relaxation leads to imaginary disorder, ideational diseases, quite as much as does over-taxation through work.

Let us here emphasize the principle that health cannot, as Hoffmann expresses it, be absorbed in comfortable repose with the aid of a drug, but must be acquired and maintained through useful work. When races or individuals, enervated through luxurious living, unwilling to accept further cares or obligations, tend toward "race-suicide" through their need for repose, and, worshipping a morbid feminism, look on hard work as a disgrace, they represent the dead twigs of humanity, which have fallen and must be replaced by fresh shoots; they have become useless and must give place to those who, through earnest work, have remained young, strong, and active.

May these few allusions suffice to indicate the unlimited field open to psycho-prophylaxis. These times of relentless, brutal competition in all fields of culture require, above all, combative characters, men of action with wills of force and purpose. Psychotherapy will have an important influence in the production of such characters, in counteracting excessive effeminateness and sensitiveness, since

the positive ideas which it arouses exert not only a curative, but also an inherent preventive action. Imagination kept within proper bounds by trained habit enables us to protect ourselves more or less against detrimental influences; it not only guards us from that fear which increases actual suffering or even produces disease, but it also augments our capacity for the enjoyment of all that is good and beautiful. This occurs in conformity with natural laws. Observation of them keeps us strong bodily and mentally; neglect of them inevitably leads to degeneration of the race. This degeneration, manifesting itself in an alarming increase in nervous troubles, as well as in other ways, can be combated only by training the brain to adapt itself to the conditions of life furnished by the intensity of work and progressive culture.

Cui bono? Why put ourselves to all this trouble? Who can be helped by such means? If such questions can still be asked, the nature of psychotherapy has not been grasped. Psychotherapy must stand or fall together with the right of existence of the entire science of medicine.

B. Practical Examples

Before illustrating the action and uses of psychotherapy by means of practical examples, it will be well once more briefly to remind the reader that suggestion acts directly as well as indirectly, and that he must keep in mind the distinction between the influence exerted by suggestion when employed alone and the influence it exerts as part of some other therapeutic procedure. In practice direct suggestion and the exclusive employment of psychotherapy are usually associated, while indirect suggestion is linked with other therapeutic measures.

Naturally psychotherapy primarily shows its effectiveness in that class of pure neuroses or psychoneuroses which are dependent exclusively on ideas and imagination. That class is made up in great part of neurasthenia (psychasthenia) in its varied forms, sexual neuroses, fright neuroses, and hysteria, with its manifold ramifications. To those must be added numerous nervous symptoms which also may be psychically induced, such as sleeplessness, loss of appetite, habitual headaches, nervous dyspepsia, imperative thoughts and acts (obsessions), hypochondriacal depression, and muscular spasms

of an epileptoid or choreoid character. In all such conditions the assurance that the affection will pass away, given by the physician and willingly accepted by the patient, usually suffices to effect a cure. But such exclusive employment of psychotherapy cannot be successful against those affections which are a combination of organic disease and functional symptoms enhanced by the fantasy and the imagination. True, the psychic symptoms of disease in such composite affections may be cured, or at least ameliorated by direct and exclusive psychic influence, but the symptoms dependent on organic disease can be influenced only indirectly by psychic means, the extent of such influence being dependent on the degree to which the force of ideas may apparently mitigate an existing malady and at the same time augment one's confidence in the beneficial action of any other therapeutic measure which is being concomitantly employed.

A just estimate of the following illustrative cases can be obtained only if these differences in the various modes of psychotherapeutic procedure be kept in mind. Moreover, let us not fail to consider that in psychotherapy, as, in fact, in therapeutics in general, the removal of the cause of a

disorder by the employment of any specific treatment is an ideal which is but rarely attained. All specific treatment premises knowledge not only of the causes of the disease against which it is directed, but also of all the changes which such disease has produced in the nerve cells; and, needless to say, this knowledge still is very incomplete. The art of medicine, however, cannot sit helplessly by awaiting the time when the science of medicine will have given us complete cognition of the processes which take place during the causation and the subversion of disease. The physician must act; hence he is obliged in most diseases to confine himself to symptomatic treatment. The task of symptomatic treatment is to eliminate from the numerous conditions which in the individual case determine the course of a disease those symptoms which stand in the foreground of the picture. While the fulfilment of this task does not strike at the root of the trouble, it does attain distinct successes through the palliation and repose which it brings about. This is particularly true in psychotherapy, which intrinsically can treat only symptoms. Phobias and obsessions of neurasthenia or the emotional outbreaks of hysteria, with their

physical associates, may be removed, and relief may be brought about which will react favorably upon the disease itself, but no one can maintain that the neurasthenia or the hysteria has thereby been cured. Still, the treatment of symptoms requires constant attention to the entire disease as well as to the entire personality of the patient. Each symptom to be treated must be recognized as merely a part in the object of attack.

Take the case, for instance, of a patient who is unable to obtain rest by night or day on account of persistent pain. He does not sleep, takes no food, and, as a result of malnutrition, is in danger of dying through exhaustion. Morphine or some other pain-relieving remedy is then prescribed by a physician. Although, of course, the cause of the disease is not removed thereby, sleep is restored with the cessation of pain, the appetite returns and tissue waste is prevented. All of which represents a therapeutic gain. Or, let us take the case of another patient suffering from urinary retention in consequence of local obstruction. The physician causes the bladder to be evacuated regularly by means of catheterization. Thus, again, only a symptom and not the cause of the disease is re-

moved, and yet it is certain this symptomatic treatment means much to the patient and favorably influences the course of the disease which afflicts him. When all has been said, every disease, clinically considered, is but an agglomeration of symptoms. Therefore, if in any disease we have no therapy which will remove the cause of the disease, but are able to cause its symptoms to pass away one by one, we certainly have brought about one of the objects of all treatment, namely the subjective feeling of well-being of the patient. Then, too, psychotherapy often must seek its end by this same indirect means of symptomatic treatment. If the neurosis itself cannot be made to disappear, then the removal of obsessions and other disturbing symptoms will constitute the task allotted to psychotherapy.

Understanding this, we may classify functional diseases, as Déjérine and Gauckler have done, according to the dominating symptoms; *i. e.*, into affections of the digestive, urinary, sexual, respiratory, circulatory and sensory organs, affections of the nerves and muscles, and psycho-neuroses in a more restricted sense. With no intention of cover-

ing this entire field or of taking up these varied symptoms seriatim, let us begin with those functional disorders which manifest themselves in digestive disturbance.

A drastic example of this nature is furnished by the case of a man of middle age, with no hereditary taint and who never had been sick, who arranged for a trip to Europe to obtain a much-needed vacation, and who about a week before the time set for sailing, was taken with nausea and vomiting. His malady increased from day to day and could not be controlled by treatment. The most careful physical examination failed to reveal any cause for the trouble. Finally, when no food of any kind could be retained, the trip had to be given up as the patient was too ill to leave home. The distressing state persisted until the steamer had left without him, and then all symptoms of illness disappeared at once. The abrupt change, together with other facts, led me to believe the patient was suffering from a species of psychic seasickness. Feeling well, the patient scoffed at that idea of the mental origin of his trouble. The episode had been forgotten, when, six years later, a trip abroad again

was planned and cabins secured. A week before the time set for that sailing, the same symptoms of nausea and vomiting recurred. This time the tickets were given up after two days of illness, and again with the same result, cessation of the symptoms. Since that time, as a result of many interviews and much explanation through which the patient was made to realize the cause and to understand the development of his attacks, he has been abroad without more than the actual mal de mer which a stormy voyage entitled him to have.

I could report another such case, which, however, did not have the same successful issue because the patient would not persist in the endeavor to overcome his trouble. He was not obliged to go abroad; the trip was merely for pleasure, so battling was not worth while to him. Similar examples could be quoted endlessly from the experience of every busy physician and they are being given now not as curiosities, but as samples of ordinary occurrences.

A frequent symptom of functional nerve disorder is anorexia, loss of appetite, or aversion to certain or all kinds of food. Notwithstanding the organs of digestion are apparently in the best of condition

and chemical examination of the stomach contents reveals no disorder, patients believe themselves to be suffering from serious gastric disease, apprehensively abstain from all food which they consider indigestible, show a repugnance to a food or a beverage which at one time or another has, in their opinion, caused distress, and thus, through their constant fear of possible ill effects from food, lead lives of anxiety and self-observation. Physicians constantly are hearing patients say they cannot take this or that food, that it is poison to them; that they cannot take one medicine or another, or can take it only in a certain form, as in a capsule, but not in powder or solution. Occasionally these complaints are due to an actual idiosyncrasy of constitution, but in the majority of instances they are pure products of the imagination. How easily such an idea may take root and thrive, if not recognized and combated, is demonstrated by the following case.

A physician of broad general culture and large professional experience, accustomed to taking claret with his dinner, was dining at a hotel, and, immediately after drinking a glassful of that wine, was taken with nausea and vomiting. He ascribed

his illness to the claret, which to him seemed adulterated. At dinner the following day the first mouthful of claret, which came from another source than that of the preceding day, caused nausea, and from then on the doctor no longer was able even to taste red wine without the recurrence of nausea. Other wines did not affect him in the same manner. He abstained from claret for several years and then, realizing the cause of his inability to drink it to be purely psychic, the doctor rebelled at his weakness and, by energetic counteraction, succeeded in permanently overcoming it.

The development and growth of such an erroneous idea in a person of neurotic constitution is well illustrated in the case of a girl twenty-three years of age whose trouble originated in an endeavor to reduce her weight. Thinking she was too stout she began dietary restriction by dispensing with potatoes and bread. Not losing weight rapidly enough to suit her, she discontinued eating starchy food of any kind and sweets. Finally, when she had lost about twenty pounds, she was apparently satisfied and made up her mind to return to a normal diet. For some reason or other the starchy foods now disagreed with her; after partaking of

them she suffered much from flatulence and belching. She sought relief by eliminating one thing after another from her diet, and soon began to run down owing to insufficient nourishment. When her attention was called to her anæmic appearance she answered, "I never felt better in my life." Little by little more and more food was cut out, until she was taking but a bowl of soup, a cup of milk, and one egg in twenty-four hours. Following an appeal for her to eat, she consented, took a full meal and promptly vomited; and that was the first of a series of vomiting spells. Her reasoning then was, "Why eat at all, since everything I take is vomited?" When I saw her, she was thin, pale, exhausted, and almost bloodless, with a weak and rapid pulse. She appeared like a person dying from starvation. Separation from her family, isolation and psychotherapy in the form of re-education gradually led to her recovery.

Such cases are not unusual. Not infrequently a severe anorexia of purely psychic origin, when not opportunely treated, has led to death. On the other hand, the most marvellous results obtained in this and analogous states by psychic treatment form part of the experience of every neurologist.

The suggestions of cure are so promptly accepted that patients who hitherto have refused food of any kind, and who, on account of their state of inanition, have to be fed with a stomach tube, experience a return of appetite after brief psychic treatment and take food with avidity.

A case reported by Dubois is that of a man fifty-eight years of age, suffering from chronic diarrhœa, which had been treated by a specialist according to all rules of science, but without success. Dubois again tried the various remedies and dietetic prescriptions given by the physician who had preceded him, but without avail. A full general diet, through which he had attained good results in similar cases, also failed; in fact, the diarrhœa increased from day to day. Discouraged by his failure, the Bernese professor did not know "to which saint to appeal." In the beginning of the treatment Dubois had sought in vain for nervous symptoms, but these gradually made their appearance until he became convinced that, as a result of hypochondriacal depression, the patient was constantly thinking of his condition, and in this manner himself was the cause of the long duration of his trouble. The patient then also ad-

mitted he talked frequently to members of his family about his diarrhœa and always prophesied its recurrence before sitting down to a meal. The patient gained control of himself and his ailment disappeared after Dubois had explained to him that, notwithstanding the absence of any discoverable inflammation, the bowel trouble had increased, that this was due essentially to constant apprehensive expectation, and that the patient had done wrong in annoying and unnecessarily tyrannizing himself and the people about him by his hypochondriacal ideas.

This case, it might be said, well exemplifies Dubois's statement that "the nervous patient is on the path to recovery as soon as he has the conviction that he is going to be cured; he is cured on the day when he believes himself to be cured." We, however, believe this criterion, the self-feeling of a patient after the application of a remedy, to be one of but little logical force. It would be better to say the patient is cured when the conditions which have caused his sickness, and which tend to maintain it, have been removed.

A case that may be compared with Dubois's is one recounted by Hirsch. To a young girl suffer-

ing from torpor of the bowels Hirsch suggested during hypnosis that a daily movement should take place at three o'clock in the afternoon. The result was the desired one. The patient then arranged to go on a journey, and, in order that she might not be inconvenienced at that inopportune time of the day, Hirsch suggested in another hypnosis that no movement would take place on the day of her trip until eight o'clock in the evening, after she arrived at her destination. After awaking from the hypnosis the girl retained no recollection of the suggestion which had been made. Its efficiency may be seen, however, from a letter which she wrote to a friend, saying: "Please tell the Doctor his suggestion did not act punctually this time, for yesterday, for the first time, my bowels did not move at three in the afternoon, but at eight in the evening."

Breuer recounts the case of a man who witnessed an operation performed on his brother. It was a matter of forcible extension of a stiff knee. Who felt the pain? Not the deeply narcotized patient, but the brother who was looking on, and he suffered for an entire year from this pain caused entirely by his imagination.

An analogous case, reported by Moll, is that of

an opera-singer without organic heart or lung disease who maintained that whenever she was in a closed room she suffered from shortness of breath and an attack of suffocation, which disappeared at once when a window was opened and fresh air came into the room. Medical treatment had failed to relieve her of this evidently functional trouble. One evening after a performance she came home ill and went to bed at once. After a few hours she awoke with all manifestations of severe respiratory oppression. The only means of relief, she thought, would be the opening of a window, but she felt too weak to get up. In her fear the oppression would increase, she took up a candle-stick standing near her bedside and threw it, as she believed, at the window. The noise of broken glass falling to the floor indicated the accomplishment of her purpose. At once she felt very much relieved by the "inflow" of fresh air and quickly went to sleep. The next morning, awaking well and refreshed, she saw to her great surprise that it was not the window which had been broken, but a looking-glass hanging beside it; that, therefore, there had been no inrush of fresh air, and that the relief from her oppression, as well as its origin, had been due entirely to her

imagination. From that time she really was cured and the attacks of oppression no longer recurred.

Let us also briefly consider here those neuroses which so often follow injuries in accidents, and which are of especial interest from a medico-legal aspect on account of the prolonged earning incapacity which they often entail. In any railroad accident, during routine factory work, injuries may be suffered which permanently restrict or, perhaps, entirely destroy a person's capability for self-support. Many similar cases are encountered, however, in which no organic disorder is discoverable or in which the organic disturbance primarily present passes away, but certain disorders of function, essentially dependent on auto-suggestion due to fright and dread, remain. Very often the sufferers from traumatic neuroses—those due to accidents—are persons of neuropathic constitution, though even persons previously healthy are not immune from such nervous manifestations. Those manifestations arise days, weeks, or months after the accident, often after symptoms of concussion of the brain and the spinal cord have been present and passed away, often without being preceded by any disorder immediately due to the ac-

cident. The chief functional manifestations of the later peroid are hypochondriacal or melancholic depression, tearfulness, feelings of head pressure, tremor, increased excitability of the sensory nerves, motor insufficiency, disorders of the heart and respiratory action, with which also may be combined symptoms due to organic changes consisting chiefly in affection of the smaller blood-vessels of the brain and the spinal cord.

The fact that these varied evidences of disease are due to one and the same cause, accident, justifies their combination into one group, even if the view that traumatic functional nervous disorders represent a certain well-defined picture of disease be not generally endorsed. Some writers lean toward the view that the neurosis which occurs after a traumatism must be classed, according to its predominating symptoms, as a hysteria, a neurasthenia, or a hypochondriasis. While a definite analysis is by no means always possible, it is certain that the most important factor in the production of all traumatic neuroses is not the physical injury but the psychic shock which accompanies it. Therefore, in conformity with the psychic causation, the treatment must also be a psychic one.

What materially adds to the difficulty of treatment of these neuroses due to accident is the litigation which usually follows a claim for damages made by the victim and the fear that the award for damages may be lessened through a rapid recovery. This by no means signifies there is any conscious simulation. Little knowledge of human nature is necessary to understand that the promise of permanent support or a lump sum paid in compensation for injuries will exert a truly magical curative influence on certain people, while the mere assurance that they are cured and perfectly able to work, when unaccompanied by material compensation, will prove of little avail. Notwithstanding the difficulties with which treatment of these cases is beset, good results are frequently obtained, especially in those cases in which there is no question of claims for damages, through psychotherapy alone, with or without hypnosis.

The following case reported by Dubois shows how the circle made up of suggestion, fear, emotions of other kind, and bodily disorder is formed.

An intelligent literary man, twenty-four years of age, accidentally struck his knee against the edge of a table. He said the blow was insignificant and

caused hardly any pain. He always had a notion, however, that injuries to the knee were particularly dangerous. Under the influence of fear, which, as we all know, augments our sufferings, the disorder grew and the apprehensive patient consulted a surgeon, who found nothing wrong, but advised rest in a reclining-chair and cold applications. Under those conditions the idea of illness gained more and more ascendency over the patient's mind. One day, as a result of self-observation, he felt something was wrong with the other knee. He communicated his fear to a physician, who considered the involvement of the other knee quite possible because, he said, there existed a "symmetry of sensibility" between both legs. A few days later the patient bumped his right elbow and, in conformity with this law of "symmetry," which he now understood, he soon had pain in the left elbow, too. In consequence of inactivity his digestion became sluggish, his appetite waned, and he believed himself to be suffering from cancer of the stomach, the symptoms of which he then studied with the aid of popular writings. For months he lived on a restricted diet, lost in weight, and became more and more ill. The emotional state induced

by his notion of having cancer in turn set up numerous disturbances of function, such as palpitation of the heart and shortness of breath, which still more increased his fears. Thus he got into a vicious circle in which his emotional processes produced bodily disorders and those reciprocally aroused new emotions. In this deplorable state the patient, who in the beginning actually was not sick at all, the entire fabric of his disease having been woven essentially by his imagination and the resultant incorrect mode of life, existed for eight years. Then he went to Dubois, who cured him in a week through psychotherapeutic influence.

The following case, which I observed myself, also shows the influence of suggestion in a neuropathic individual after an accident. The patient, a girl of twenty-two, was thrown from a bicycle and fell on her left side, striking on her shoulder and the the left side of her head. Dazed, but not unconscious, she arose and, thinking she had dislocated her arm, walked to the office of a near-by physician. He, believing her to have been seriously injured, sent her to a hospital, where she was placed in a surgical ward. Careful examination in the hospital failed to reveal any symptoms of

organic trouble, but she was allowed to remain so she could recuperate from the emotional shock caused by the accident. On the fifth day of her stay, a woman suffering from a brain injury was placed in the adjoining bed. During the night this woman had a convulsion beginning in the left arm, and that formed the topic of a conversation on the following day between one of the internes and a nurse. Our patient, the girl, heard this conversation, and the same evening began complaining of renewed pains in her left arm. These pains grew in intensity, the arm began to shake, and in an hour she had a generalized convulsion. On several subsequent days she had similar convulsions, which bore all the characteristics of major hysteria. Examination showed a loss of sensation of the skin and of the mucous membrane of the entire left side. The girl was removed from the ward, isolated, and treated as a case of hysteria, special pains being taken to explain to her the psychic genesis of her trouble. In a fortnight she was discharged as cured.

Neurasthenoid cases cured by psychotherapy could be cited in large number. Typical of this class is the case of a man with all symptoms of

marked nervous exhaustion, fear and restlessness, weakness and tremor of arms and legs, incapacity for work, sensations of dizziness, sleeplessness, and loss of appetite. A death in his family brought on a depression which caused him to wish for nothing but death. No symptoms of organic disease were present. This patient was cured through suggestion, one symptom after another being explained to him to show him its origin, its development, and its influence in the production of other symptoms. First his sleep returned, then his appetite became better, next his general nutrition improved, and with that all his nervous troubles disappeared.

Medical literature is replete with cases of various forms of sexual neurasthenia, masturbation, sexual impotence due to fear and apprehension, and perversions in the same domain, all of which have been cured or, at any rate, materially relieved by psychic treatment. The same holds true of the various obsessions and phobias which so often thrive upon a neurasthenic or hysteric soil, the most common of these being agoraphobia, the fear of open spaces, claustrophobia, the fear of being alone in a confined space, stage fright, and the fear of a fear. Cases also could be quoted showing that the

remarkable influence exerted by psychotherapy is not confined to pure neuroses and psychoneuroses, but extends also to diseases which are only partly dependent on psychic causes, such as stuttering, nocturnal bed-wetting of children, neuralgias of various kinds, chronic alcoholism, and morphinism. Even pronounced anæmias may be beneficially influenced through suggestion therapy in so far as an improvement of appetite, digestion, and general condition by psychic means gives an impetus to the formation of hæmoglobin and an increase in the number of red blood-cells.

Finally, in so far as purely organic diseases are concerned, psychotherapy can serve only to palliate some of the distressing symptoms, while, of course, it can have no influence on the organic changes themselves and the process of disease will take its own course, whether toward recovery or toward death. But even when the changes which disease has produced in the body can no longer be remedied, and when the patient, in spite of surgery, medicine, and all solicitous care, is doomed to languishing dissolution, the power of the mind to master disordered feelings through exertion of the will causes pains and distress to appear less intense and

makes disease more endurable. Through fostering and strengthening that power in his patients who are hopelessly sick, the physician can best demonstrate his powers for good. As Billroth said in a speech delivered in 1891, "The patient comes to the physician for advice, consolation, and hope; if you give him nothing of this, you may be an excellent diagnostician and prognosticator, but you are no doctor."

CONCLUSION

The road we have travelled has been long and arduous, and we have now come to the end of our excursion into the fields of suggestion and psychotherapy. Like the wanderer who has reached his destination and looks backward to recall to mind the chief stages of his journey, let us summarize and take a brief retrospect of the chief results obtained through our medico-psychologic study.

Above all we have learned that, without a knowledge of the facts which govern suggestion, no comprehension of psychotherapy can be had. The doctrine of suggestion, in turn, premises a knowledge of physiologic psychology based on observation and experiment. Just as the entire art of medicine was dependent on accident and chance, so long as the cause and the nature of disease were unknown, so psychotherapy, without the groundwork mentioned, would be pure speculation, a groping in the dark. Medicine during the last century has been placed on an entirely new basis, through which alone it has become possible for

psychotherapy to develop from a mystic hocus-pocus into an exact science. As chemistry has arisen from irrational alchemy, as astronomy has developed from that pseudo-science, astrology, so has modern psychotherapy grown from mediæval belief in miracles, from the cloudy conceptions of animal magnetism and from the spiritistic trickeries of a Cagliostro and a Slade.

This transformation cannot be better pictured than by citing the words of Mephistopheles to the student in Goethe's "Faust":

> "To grasp the spirit of medicine is easy;
> Learn of the great and little world your fill
> To let it go at last, so please ye,
> Just as God will." —*Taylor's Translation.*

Then it was not known that diseases were processes of nature governed in cause and course by inalterable laws. Then disease was attributed to astral influence or to some other incomprehensible power. Then the pious believed, as some of them do to-day, that diseases are visitations of God, punishment for sin, and that recovery can be obtained only through God's pardon, all going at last "just as God wills."

To-day we need no longer fold our hands in

resignation and inactivity. To-day we know that there is no intervention of supernatural power in the laws of nature, and whether diseases will become our undoing or whether we will be able to deflect their course or to cure them depends essentially upon our comprehension of the physical and chemical forces which nature holds in store. The ills which oppress us are the result of our own ignorance or folly—hence can be combated only by appreciation of their productive causes and by systematic modification of the natural laws which govern them. This applies with equal force to those functional diseases for which psychotherapy is to be the means of cure.

We hope we have succeeded in showing to what extent a physician, by means of suggestion, can influence the brain activity and the imaginative power of his patients in order to relieve them of suffering. Is not the influence exerted by methodic commendatory advertisements a matter of daily experience? Do not the newspapers, through dissemination of questionable, or even entirely untrue statements, create and foster belief, sacrifice, and enthusiasm, as well as the lowest passions? Why should not the physician make use of this power of imagina-

tion in order to restore his patients to health and contentment? The determining and difficult measure for this purpose is the employment of therapeutic suggestion in accordance with a well-defined method, a method based on the scientifically proven fact that an effect which the human organism anticipates tends to take place. There is nothing wonderful in this. There is no need for looking far afield, no need for seeking supernatural causes. The natural explanation lies close at hand. It is contained in the previously noted law of ideational dynamics, according to which, if the suggestive receptivity of an individual be sufficiently pronounced, suggested concepts will elicit sensations and movements which heretofore have been missing, and, on the other hand, will do away with sensations and movements which previously were present. All personal influence which a physician exerts, consciously or unconsciously, is more or less dependent on this method. The confidence produced by his comportment, the assurance of his demeanor, his solicitude for the patient's welfare, his example, his verbal or written dictates, all act suggestively, even when the suggestion is not intended by him or recognized as such by the patient.

If, then, unintentional suggestion emanating from a physician can prove of service as a mere aid to medicinal or other curative factors, how much more potent must be the action of suggestion when it is employed purposely by a psychotherapist trained as a specialist?

We have seen that scientific psychotherapy is based, on the one hand, on the laws of psychology, and, on the other, on the pathogeny of neuroses. What we call "mind" is nothing else than a vital manifestation of the brain in accord with well-defined laws.

To recapitulate briefly, the processes which take place to produce such manifestation are: All our concepts arise from sensory perceptions which impress themselves upon our consciousness in a manner not yet completely understood. These sensory perceptions become stored up as memory images, which may be reawakened later, in certain brain cells connected with one another through association fibres. One person may have a good memory, another a bad one, and that signifies the brain cells of the one retain impressions received longer and more firmly than do those of the other. By means of association, sensory perceptions and

memory images become joined into ideas, which are the more complex the greater the number of sensory impressions which the adolescent being takes up. In conformity with the law of psychophysical parallelism, ideas are accompanied by physical expressions, such as muscular movements, increase or decrease in the regularity of heart action and of respiration. What cannot be emphasized too strongly is that this reaction of ideas upon bodily functions constitutes the natural basis of suggestion and psychotherapy. Functional diseases also, are manifestations of life under abnormal conditions, but those abnormal conditions consist in false ideas and not in organic changes. The same idea which will so alter the quality of a sensory perception that it will make a person drink water, thinking it is wine, or eat a potato with special relish under the impression that it is an orange, will also cause an inhibition of function or produce other physical disturbances. Functional disorder will give way to a normal state as soon as the condition under which it exists has again become normal—that is, when the false ideas have been removed by suggestion. Furthermore, we have seen that psychotherapy has at its command not

only treatment by suggestion, but also the psychoanalytic method of Freud. True, this method still requires corroboration, so a final judgment cannot yet be pronounced on it. Perhaps, after all, catharsis, that postponed discharge of the emotions which primarily have produced the hysterical symptoms and neurasthenic obsessions, may have a certain measure of success alongside or apart from suggestion. Before closing, we would direct attention once more to the fact that the capable psychotherapist need not, as a rule, employ hypnosis to effect an increase of suggestibility. On the other hand, neither in prophylaxis nor therapeutics can he dispense with those important aids, mental relaxation and exercise, appropriate occupation and training founded on psycho-physiologic principles, which will tend to fortify the power of nerve resistance.

The knowledge which has been gained of the nature of suggestion and psychotherapy certainly represents progress of no ordinary kind, for not only has it materially widened our comprehension of the human mind, but it also has taught us that the therapeutic application of all psychic methods should and must remain in the hands of the trained

physician. Even if such treatment be limited to the cure of diseases of the "imagination," functional disorders, and symptoms wanting in discoverable organic change, still it can never be acquired through a study of books alone. No one can become a capable psychotherapist except through natural aptitude and tact, medical training, and experience.

LITERATURE

1. Bechterew.—"Suggestion und ihre soziale Bedeutung." Leipzig, 1899.
2. Bernheim, H.—"De la Suggestion." Paris, 1888.
3. Braid, James.—"Neurypnology." London and Edinburgh, 1843.
4. Braid, James.—"Observations on Trance or Human Hybernation." London, 1850.
5. Breuer, Joseph, and Freud, Sigmund.—"Studien ueber Hysterie." Wien, 1909.
6. Bumke.—"Koerperliche Begleitersheinungen Psychischer Vorgaenge." Wiesbaden, 1909.
7. Bunge.—"Lehrbuch der Physiologie des Menschen." Leipzig, 1903.
8. Clouston, T. S.—"The Hygiene of the Mind." New York, 1907.
9. Dercum, F. X.—"An Analysis of Psychotherapeutic Methods." *Therapeutic Gazette*, May 15, 1908.
10. Dercum, F. X.—"The Rôle of Dreams in Etiology." *Journ. Amer. Med. Assn.*, May 13, 1911.
11. Dessoir, Max.—"Das Unterbewusstsein." *Zeitschrift für Psychotherapie*, vol. 1, pt. 4, p. 193.
12. Déjérine and Gauckler. "Les Manifestatious Fonctionelles des Psychoneuroses." Paris, 1911.
13. Donaldson, H. H.—*Journal of Nervous and Mental Diseases*. New York, May, 1911.
14. Dressler.—"Vorlesungen ueber Psychologie." Heidelberg, 1900.
15. Dubois, Paul.—"The Psychic Treatment of Nervous Disorders." Translated from the French by S. E. Jelliffe and W. A. White. New York, 1908.
16. Eddy, Mrs.—"Science and Health." Boston, 1907.

17. Engelen.—"Suggestion und Hypnose." Muenchen, 1905.
18. Flammarion.—"L'Inconnu." Paris, 1899.
19. Forel.—"Der Hypnotismus und die Suggestive Psychotherapie." Stuttgart, 1902.
20. Freud.—"Psychoanalyse." Leipzig, 1910.
21. Flechsig.—"Gehirn und Seele." Leipzig, 1896.
22. Garbe.—"Ueber den Willkurlichen Scheintod indischer Fakirs." *Beiträge zur indischen Kulturgeschichte*, p. 211. Berlin, 1903.
23. Gilles de la Tourette.—"Traité clinique et thérapeutique de l'Hystérie," etc. Paris, 1891–5.
24. Heller.—"Heilpaedadogik." Leipzig, 1904.
25. Herman.—"Lehrbuch der Physiologie." Berlin, 1902.
26. Hirsch, Max.—"Suggestion und Hypnose." Leipzig, 1906.
27. Hoffmann.—"Allegemeine Therapie." Leipzig, 1903.
27a. Hollender, B.—"Hypnotism and Suggestion." London, 1910.
28. Krafft-Ebing, R. von.—"Hypnotismus." Stuttgart, 1889.
29. Liébault, A.—"Der Kuenstliche Schlaf," etc. Leipzig, 1892.
30. Magnus.—"Aberglaube in der Medizin." Breslau, 1903.
31. Moebius.—"Physiologischer Schwachsinn des Weibes." Halle, 1908.
32. Moll.—"Hypnotismus." Berlin, 1903.
33. Münsterberg, Hugo.—"Psychotherapy." New York, 1909.
34. Obersteiner, H.—"Functionelle und Organische Nerven-Krankheiten." Wiesbaden, 1900.
35. Oppenheim, H.—"Psychotherapeutische Briefe." Berlin, 1906.
36. Parmele, Mary Platt. "Christian Science. Is it Christian? Is it Science?" New York, 1904.
37. Paul, N. C.—"Treatise on Yoga Philosophy." Third edition. Cited by Bunge. Not obtainable in the original. Bombay, 1888.
38. Preyer, W.—"Der Hypnotismus." Wien, 1890.

39. Prince, Morton, and others.—"Psychotherapeutics." A symposium. Boston, 1910.
40. Putnam, J. J.—*American Journal of the Medical Sciences*, January, 1908.
41. Rosenbach, O.—"Grundlage, Aufgabe, und Grenze der Therapie." Wien, 1891.
42. Schmidt, Richard.—"Fakire und Fakirtum im alten und modernen Indien." Berlin, 1908.
43. Stoddart, W. H. B.—"Mind and Its Disorders." Philadelphia, 1909.
44. Wundt.—"Grundzuege der Physiolgischen Psychologie." Leipzig, 1899.
45. Wundt.—"Vorlesungen ueber die Menschen und Thierseele." Leipzig, 1901.
46. Zander.—"Nervensystem." Leipzig, 1906.

INDEX

After Sensations, 45.
Altruism and medicine, 217.
Appetite, loss of, 321.
Aristotle, 60, 284.
Articulate speech, 72.
Association centres, 36.
Association fibres, 32.
Association of ideas, 51–53.
Association of ideas, laws of, 59, 60.
Association of ideas and emotional tones, 63.
Attention, 66.
Attention and brain, 67.
Automatic writing, 175.
Auto-suggestion, 180.
Auto-suggestion and sense deceptions, 181.
Axone, 26.

Balassa, 196.
Baynard, 160.
Bechterew, 120, 131, 144, 202.
Beethoven, 82, 115.
Berger, 58.
Bernheim, 137, 138, 154, 200.
Billroth, 337.
Boettiger, 184.
Braid, 160–162, 199.
Brain centres, localization of, 33, 34.
Brain, convolutions of, 30.
Brain, cortex of, 32.
Brain, development of, 34, 35.
Brain gymnastics, 303. See Mental Exercise.
Brain, structure of, 28.
Brain vibration, 58.
Breuer, 161, 285–288, 291, 327.
Broca, 32, 33.
Bumke, 54, 58.
Bunge, 158, 161.

Catharsis, 283.
Charcot, 201, 279.
Charlatanism. See Dilettanteism, medical.
Cheyne, 160.
Child mind, 92.
Children's crusades, 187.
Christian Science, 203, 223. 231, 238, 252.
Church sleep, 238.
Civilization and nature, 215.
Clairvoyance, 173.
"Clever Hans," history of, 40.
Co-consciousness, 172.
Cognition, limits of, 12.
Concepts. See Perception.
Connecting tracts, automatical function of, 51.
Consciousness, dissociation of, 179.
Convulsions, psychic, 334.
Co-ordination of movements, 94.
Cortex, regions of, 32.
Criminals, brain of, 32.

Dance-madness, 189.
Darwin, 212, 216.
Deductive methods, 109.
Déjérine, 319.

De la Tourette, Gilles, 155, 156.
Delboeuf, 266.
Dercum, 15, 292, 295.
Dessoir, 202.
Development, law of, 212.
Diagnosis, errors in, 230.
Dilettanteism, medical, 4.
Dilettanteism, medical, dangers of, 4, 5.
Dilettanteism, medical, victims of, 5.
Donaldson, 28, 37.
Double consciousness, 138.
Double personality, 136, 137, 173.
Dowie, John Alexander, 258.
Dream, 84–92.
Dream analysis, 88.
Dressler, 87.
Dualism of body and soul, 17, 18.
Dubois, 148
Du Bois-Reymond, 47, 94, 325, 331.
Dukhobortsi, 205.
Du Prel, 76, 176–178.
Dyspnœa, psychic, 328.

Eddyism, 253.
Edmonds, Laura, 174.
Eglinton, 176–178.
Ego. See Selfhood.
Ehrenberg, 25.
Emmanuel Movement, 260.
Emotional tones and association of ideas, 63.
Engelen, 134, 136.
Eulenburg, 202.
Excitation threshold, 43.
Expressional movements, 40, 54.

Fakirs, 158–162.
Fakirs, cataleptic state of, 162.
False conceptions, correction of, 112.
False concepts, causes of, 108, 109.
False concepts and mental disorder, 111.
False concepts and organic changes, 111.
False concepts, diagnosis of, 112.
Faria, 197–199.
Fechner, 300.
Fichte, 70.
Flagellants, 185.
Flammarion, 77.
Flechsig, 34, 36, 92.
Flying, hallucinations of, 86.
Forel, 133, 152, 153, 202.
Freud, 88, 285, 288–295.
Frontal lobe, third convolution of, 33.
Functional disorder, 122, 282.
Functional disorder, psychic origin of, 123.
Functional disorder, psychic cure of, 123.

Gall, 30, 32.
Gambetta, brain of, 30.
Garbe, 162.
Gauckler, 319.
Geniuses, 80–84.
Goethe's hallucination, 115.
Gruber, 103.

Hack-Tuke, 202.
Half-consciousness, 85.
Hallucination, 114.
Heinroth, 106.
Hellenbach, 176, 177.
Heller, 304.
Hermann, 23.
Hirsch, 326, 327.
Hoffmann, 299.
Hollander, 196.
Hypnosis, 135, 164, 198, 199.

Hypnosis, production of, 168.
Hypnosis and sensory deception, 140.
Hypnosis and rapport, 167.
Hypnosis and sleep, 166.
Hypnotic experiments, dangers of, 234.
Hypochondriasis, 108, 330.
Hysteria and sexual sphere, 289.

Ideler, 106.
Illusion, 115.
"Imaginary" diseases, 140.
Imagination, power of, 148.
Imperception, 113.
Impressions, similarity of, 60.
Impressions, simultaneity of, 60.
Inductive methods, 109.
Instincts, 62.
Institutions for psychic treatment, 305.

James, 79, 80.

Kant, 14, 149, 181.
Keller, Helen, 119.
Kircher, 196.
Kohlschuetter's curve of sleep intensity, 300.
Krafft-Ebing, 136, 152, 153.

Liébault, 154, 155, 199, 200, 278.
Lloyd-Tuckey, 202.
Lombroso, 32, 146.
Lycanthropy, 184.

Magnetism, animal, 197.
Magnus, 239, 255.
Man, characteristics of, 98.
Maternal impressions, 154.
Mayer, J. R. von, 110.
Medusa, excitation of, 23.
Memory pictures, 21.
Memory pictures, cells of, 48, 49.
Memory pictures in childhood, 93.
Mental activity, organs of, 20.
Mental activity, objective, 69.
Mental activity, subjective, 69.
Mental exercise, 296.
Mental rest, 296.
Mesmer, 195.
"Miracles" and natural science, 12.
"Miracles," natural causes of, 13.
Moebius, 101, 102, 225.
Moll, 180, 202, 271, 327.
Mouchart, 87.
Münsterberg, 201.

Nancy School, 154.
Natural selection, means of, 212, 213.
Nerve cells, 25–28.
Nerve fibres, 25–28.
Nerve process, injury of, 27.
Nerve structure, formation of, 25, 26.
Nerves as conductive organs, 37.
Nervous elements, differentiation of, 22.
Neurasthenia, 308.
Neurasthenia and luxury, 312.
Neurasthenia, sexual, 335.
Neurasthenic sleep curve, 300.
Neuron, 27.
Neuroses, 122.
Nietzsche, 212.
Nightmare, 86.

Obersteiner, 123, 124, 271.
Occipital lobe, 33.

Paracelsus, 195.
Parietal region, 35.
Parmele, Mary Platt, 256.
Pasteur, 1.
Patient, requirements of, 271.
Paul, N. C., 158, 161.
Perception, disorders of, 113.
Perception, intensity of, 41.
Perception, production of, 59.
Perceptions, association of, 59, 60.
Perceptions and emotional tones, 62.
Perimetry, 67, 302.
Personality, dissociation of, 141.
Physician, personality of, 262.
Popularization of medicine by laymen, 4, 5.
Popularization of medicine by physicians, 6.
Popularization of science, 1.
Post-hypnotic amnesia, 169.
Preyer, 181, 202.
Priests as physicians, 238.
Prince, 142, 172, 201.
Psychasthenia. See Neurasthenia.
Psychic centres, 36.
Psychic contact, 267.
Psychic infections, 122, 132.
Psychical research, Society for, 201.
Psycho-analysis, 283.
Psychology, empirical (exact), 18–20.
Psychology, experimental, 19, 20.
Psychology, speculative, 9, 18.
Psycho-physical parallelism, 53.
Psycho-prophylactic treatment, 307.
Psychoses and central nervous system, 105, 106.
Psychotherapist, requirements of, 264.
Psychotherapy, incompetent employment of, 230.
Psychotherapy, objections to, 221.
Psychotherapy and organic diseases, 336.
Psychotherapy and psychiatry, 209.
Putnam, 201, 275.

Rabies, spurious, 183.
Ramon y Cajal, 27.
Raphael, 82.
Rapport in hypnotic state, 167.
Raskolniks, 205.
Reaction, production of, 22.
Reflex, process of, 23.
Rochas, 120.
Romanes, 76.

Saints as physicians, 242–250.
Salpétrière School, 156.
Scepticism of patients, 271.
Schmidt, 161.
Schools for feeble-minded, 311.
Schrenck-Notzing, 8.
Schubert, 90.
Seasickness, psychic, 320.
Secondary sensory impressions, 45.
Selfhood in children, 70, 71.
Selfhood, conflicts of, 72.
Selfhood, feeling of, 69, 70.
Sense deceptions, morbid nature of, 46.
Sense deceptions, power of, 120.
Sensory apparatus, 24.
Sensory centres, 35.
Sensory impressions, transmission of, 37, 38.

Sensory perceptions, 39.
Sensory perceptions in animals, 39.
Sex, equal value of, 100.
Sidis, 201.
Sleep, 84.
Sleeplessness, cause of, 300.
Sleep-walkers, 52.
Soul-blindness, 49, 50.
Specific sensory energy, law of, 25, 45, 46.
Speech, articulate, organs of, 33.
Speech, development of, 95.
Spiritistic mediums, 178.
Spiritistic phenomena, explanation of, 175.
Starvation in order to lose weight, 324.
Stimulation, intensity of, 41.
Stimulation, reception of, 24.
Stoddart, 113.
Subconscious mind, 171.
Suggestibility, 134.
Suggestibility, increase of, 163.
Suggestion and action of medicine, 151.
Suggestion, adoption of, 133.
Suggestion and bodily functions, 150.
Suggestion and crime, 144.
Suggestion, definition of, 131.
Suggestion and hysteria, 141.
Suggestion and individual nature. 155.
Suggestion, limits of, 149.
Suggestion and organic changes, 149.
Suggestion and pedagogy, 149.
Suggestion, properties of, 143.
Suggestive influences, 225.
Suggestive influences of advertisements, 227.
Suggestive influences of medicines, 227.
Suggestive power of surroundings, 146.
Survival of the fittest, 211.
Szandor, Ilma, 136, 179.

Telepathy, 75.
Temple sleep, 193, 237.
Temporal lobe, 33.
Thinking, disordered, 64.
Thought transference. See Telepathy.
Townsend, 160.
Trance, 173.
Traumatic neuroses, 330.

Verworrn, 196.
Virchow, 8.
Vitalia, Nun, 206.

Waking suggestion, 163.
Waldeyer, 27, 32.
Wetterstrand, 202.
Will, 65.
Will, freedom of, 71.
Wilson, 196.
Witches and hysteria, 185.
Woman, characteristics of, 98.
Worcester, Dr., 260.
Wundt, 19, 84.

Yogis. See Fakirs.

Zander, 95, 183.
Zoellner, 76, 177.

COUNTWAY LIBRARY
HC 5QEI

22 R 125
Suggestion and psychotherapy, 1912
Countway Library AGY4606
3 2044 045 075 579

Date Due

31 OCT 67 CLM			

Demco 293-5

22 R 125
Suggestion and psychotherapy, 1912
Countway Library
AGY4606
3 2044 045 075 579